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ABSTRACT

The Curriculum Research Institute papers presented here draw upon the behavioral disciplines of psychology, psychiatry, and sociology to examine some aspects of factors affecting the nurturing of individual potential. Although content, scope, and sequence of learning opportunities are central in individual development, other significant influences which have not yet been adequately explored by curriculum examiners are covered here. Some of these areas of exploration include creative or divergent thinking abilities; the processes of teaching and the effects of teaching styles on the nature of student achievement; and the impact of the school and community social milieu on learning. The articles presented point to a more meaningful construct of the teaching-learning process and the educators can begin to understand the ways school programs ignore individual abilities, that groups of children are confronted with learning tasks which seem inappropriate for them, and that cultural and subcultural forces significantly influence pupil achievements. (Author/SES)

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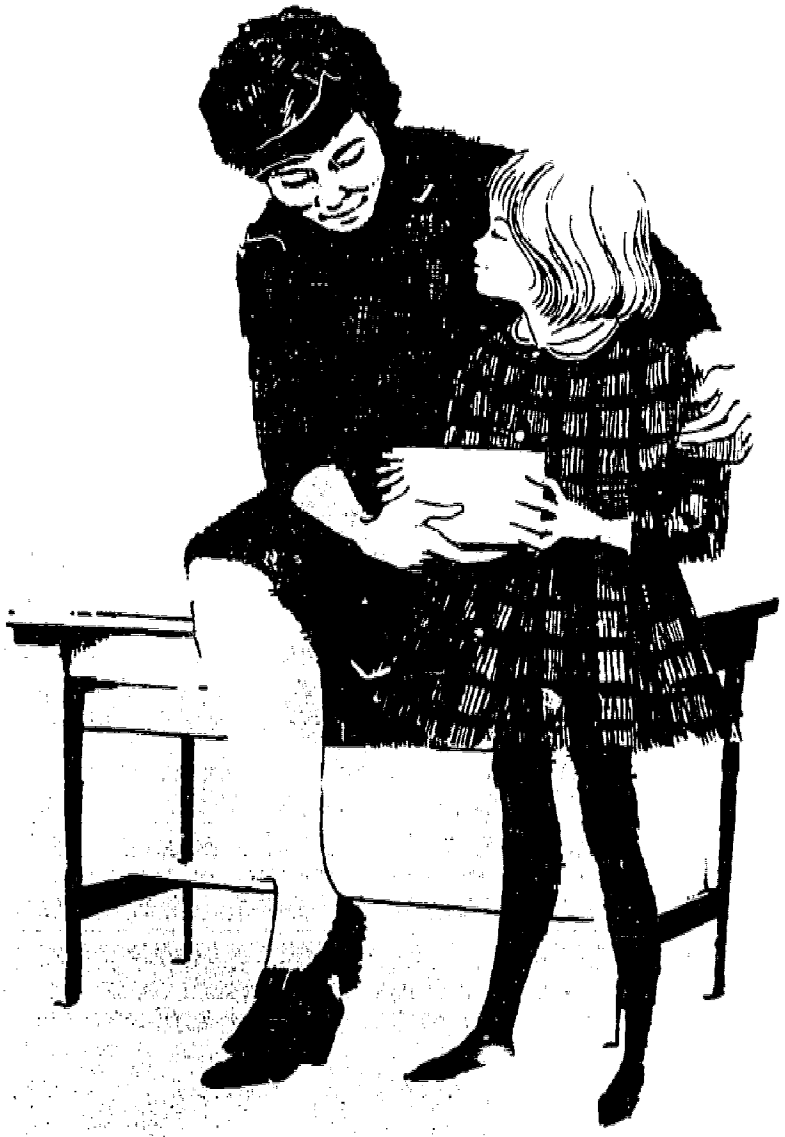

NURTURING INDIVIDUAL POTENTIAL

Papers and Reports from

The ASCD Seventh Curriculum Research Institute

Edited by A. Harry Passow

Director of the Institute Staff

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Foreword

ASCD Curriculum Research Institutes serve the valuable function of encouraging scholars to extrapolate and form hypotheses concerning the educational process.

Ideas presented at an institute may support some of our current convictions and contradict others. For example, in reading this collection of papers, we may find ourselves concurring with Cloward's generalization that the persisting value orientations stemming from family, neighborhood or cultural tradition facilitate or impede academic achievement; or we may find ourselves being vaguely disturbed with Kubie's stress on the importance of preconscious learning. Both cause us to think and to project possible implementation.

All of us want to be more effective in nurturing human potential. I think each of us will feel a thrill of excitement as we read this pamphlet. We will see the scholars pointing to some pitfalls into which we have already tumbled and to some vistas whose existence we did not suspect. Their comments will help us recheck our theories that guide the way we work with people.

In my opinion, *Nurturing Individual Potential* will be as effective as *Learning More About Learning, Freeing Capacity To Learn, Human Variability and Learning,* and *New Dimensions in Learning* in provoking professional soul searching. ASCD is grateful to Harry Passow for his skillful editing and to the contributors who confirm and/or confront us.

March 1964

Kimball Wiles, *President*
Association for Supervision
and Curriculum Development

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Nurturing Individual Potential: An Introduction

A. Harry Passow

THE Curriculum Research Institute papers presented here draw on the behavioral disciplines of psychology, psychiatry and sociology to examine some aspects of factors affecting the nurturing of individual potential. Obviously, content, scope and sequence of learning opportunities are central in individual development. The discussion here, however, focuses on some of the significant influences which as yet have not been adequately explored by curriculum planners.

There are, for example, areas of individual differences which have not been taken fully into consideration in planning educational opportunities. Such areas of intellectual development as creative or divergent thinking abilities represent one such facet of potential. Analyses of both the processes of teaching and of the effects of teaching styles on the nature of student achievement represent another dimension. The impact of the school and community social milieu on learning, still another. These do not exhaust the factors and influences complicating the task of school planning for nurturing individual potential but represent a sampling from research and experimentation of concern to the program planner.

It is the cumulative interaction of student, staff, content, method, resources, school and community milieu and family relationships which directly affects the development of the individual's potential. As we comprehend these interactions and deepen our insights and understandings of their impact on learning, we begin to build a more meaningful construct of the teaching-learning process—a construct more complicated but also more helpful than earlier simpler models. As we come

to understand that there are individual abilities ignored or slighted by school programs, that groups of youngsters are confronted with learning tasks which seem inappropriate for them, that cultural and subcultural forces significantly influence pupil achievements, we begin to see the rough outlines of a framework for thinking about a multidimensional approach to nurturing individual potential.

Nurturing Creative and Productive Potential

Donald W. MacKinnon describes the traits of highly creative persons which have emerged from the Institute for Personality Assessment Research studies. He lists 17 factors which seem common to the creative adults studied, factors presumably related to their development as highly competent, productive individuals. Most of these distinguishing traits are descriptive of the individual's personality, his home and family relationships, and the circumstances which seemingly contributed to his personal development.

Striking as is the relative absence of many familiar school-related factors, the implications for educational programs and practices seem relatively clear to Dr. MacKinnon and his associates. In the first place, he suggests that the school should aim to develop the individual's capacity for intuitive perception—"an immediate concern for implications, and meanings, and significances, and possibilities beyond that which is presented to the senses." What he is suggesting is that a "factual base" for student learning be built but that this should not be an end in itself. For educators, there are implications in the notion that a knowledgeable individual is one who has accumulated facts, but has developed the capacity to play around with these facts. What educational modifications will nourish this potential for intuitive thinking? MacKinnon argues for strengthening and reinforcing intuitive perception, setting goals for individual learning high enough to challenge the student, to involve him in problem-solving operations where the degree of difficulty and frustration is sufficiently great to test his persistence.

MacKinnon also reminds curriculum planners and teachers of the values of the phenomenon of serendipity in individual learning and development. For instance, he suggests that as a student withdraws from a difficult problem to seek new approaches and new modes of attack for its solution, he should have the chance to draw novel strengths from an environment alive with ideas and stimulation. MacKinnon believes strongly that the teacher stirs his students' imagination by revealing the excitement and satisfaction he gains from absorption in professional problems and challenges.

By presenting a view of the structure of knowledge in his subject area, by seeking to elicit creative responses to many unsolved problems, by evidencing his own commitment and excitement, the teacher offers the student a model worth copying. It is from such a vital instructor that the student learns something of the delight and fresh insights that flow out of confidence in one's own competence and exercise of one's skill. The basic implication of MacKinnon's remarks is his belief that the teacher who would nurture creativity in his students had better be a creative person himself. Reassuringly, there are techniques of instruction better suited than some others to nurture these potentially creative traits. Some of these techniques are explored in the paper by Gallagher.

A selected sampling of research related to nurturing productive thinking in the classroom is presented by James Gallagher. He looks at modifications in administrative arrangements, organization, curriculum content, and methods. Gallagher uses the term "productive thinking" in a broad sense to include many types of cognitive behaviors—problem solving, analytical, logical, as well as divergent or creative. As to content, he points to several curriculum-building efforts by committees of scholars and educators aimed at placing greater emphasis on integrating concepts, on inquiry in depth, and on developing earlier readiness for conceptual learning. Methodologically, Gallagher points to the need for curricular experiences which enable youngsters to acquire the engaged spirit and technique of the independent inquirer rather than the contemplative posture of the uninvolved onlooker. To illustrate one possible approach, he describes a project designed to teach youngsters the methods of scientific inquiry.

Gallagher also points up the significance of the interrelationships between content and method, between teacher and learner. He illustrates these relationships by describing the effects of different kinds of teacher behavior on children. He stresses the fact that as many questions are raised as are answered for varying teaching strategies in affecting different aspects of individual behavior and in bringing about different kinds of behavioral changes. We know that—but do not know why—various teacher approaches—questions, assignments, foci, emphases, materials use, structuring—can stress cognitive, convergent, divergent, or evaluative thinking or memory. How can teachers devise methods and stress subject matter learnings which call into play different types of intellectual operations? How can the teacher become more self-aware so as to gauge how his own behavior affects the classroom outcomes, facilitating or impeding the growth of different kinds of abilities?

Gallagher's brief review of some research samples the findings

which are emerging concerning the character of productive thinkers and the effects on productive thinking of the interaction of teacher and pupil and learning tasks. He urges that educational programs be developed to nurture the productive thinking potential of individual students as well as the more usual cognitive learnings which are normally stressed.

Lawrence Kubie opens a neglected area for consideration by the curriculum worker and teacher. Questioning the assumption that man thinks and learns only consciously, he suggests that throughout life learning consists of numerous two-way interchanges—". . . studying, learning, the incorporation of new data, the reassembling of this new data into new combinations is a mixed ingestive and projective experience." Kubie condemns the educational processes which have failed to make man more mature, "to free men from the neurotic distortions inherent in the early steps of the growth process." He views the conscious processes as sampling devices and communication tools and argues that the intake of factual data is overwhelmingly preconscious; that most, if not all, of our thinking is preconscious rather than conscious.

Kubie challenges the schools to recognize the powerful preconscious instruments of learning, of processing and of creating. He advises teachers to study and understand the significance of preconscious functions in education and to attempt to protect these functions at critical periods in individual development. The techniques nurturing the preconscious processes are found, perhaps only indirectly, in Kubie's belief that what is needed is "to be educated in how not to interfere with the inherent capacity of the human mind to think." He contends that educators must understand the implications of the school setting, the methods, the data and symbols employed on the "free creative velocity of our thinking apparatus" as it is braked and driven off course by unconscious forces.

Kubie proposes that the preconscious processes be studied in the clinical setting of laboratory or research schools which are analogous to research hospitals. Finally, Kubie urges that teachers observe themselves more acutely in relationship to their students, the better to understand the ways by which preconscious processes are curbed or distorted since such curtailment and distortion ultimately affect the development of the learner's creativity.

Teacher Style and the Teaching Act

Ned Flanders reports on studies of teacher influence in the classroom and the relationships of pupil achievement to teaching style. One teaching mode, he labels "direct influence" and the other, "indirect

influence"; both styles determine the degree of learner independence and, in turn, affect pupil achievement. From his own and related studies, Flanders proposes some hypotheses about the possible effects of direct and indirect teacher influence in those situations in which the goals are clear and others in which the immediate teaching/learning goals are unclear.

Flanders finds that teachers whose pupils seem to achieve above the average differ from those below-average teachers in terms of general flexibility and adaptability to the specific goals of the moment. Though above-average teachers use time and methods differently, their students score higher on the achievement tests. He finds also that a pupil's reaction to teacher influence depends on his perception of the learning goal and the methods for attaining that goal.

Flanders' studies underscore the need for better understanding of the many facets of the teaching act and of the meaning of compatibility between teacher and student styles as factors in effective learning. The way in which the teacher works in the classroom and the teacher's personality have important effects on the child's learning and on his emergent personality structure. The element of flexibility in the teacher's influence patterns was greatest in those classes in which achievement was highest. Flanders suggests that creative teaching and the nurturing of potential are expressions of a particular teacher's personality, working with a particular group of students, in a particular subject field—rather than a fixed trait of a generalized good teacher. The "indirect influence" teachers seem capable of filling many different roles and of shifting their roles in a manner which is consistent with the particular needs of the instructional tasks faced.

The achievement of higher academic standards, Flanders cautions, will probably not come through some meaningless "get-tough policy," but by asking questions and using students' ideas, perceptions and reactions to build greater self-direction, responsibility and understanding. Higher standards, he suggests, come from having students face the consequences of their own ideas and opinions, not passively listening to the teacher's. It follows that teachers need training to develop their sense of acceptance toward students' ideas, for planning work and diagnosing difficulties, as well as experiences that help them understand their own roles and behaviors in classroom interaction.

Education in Disadvantaged Areas

We know that there are large numbers of youngsters for whom existing programs are not adequate, who drop out of school or who

fail to achieve. The impact of disadvantaged environments on the development of individual potential is just beginning to receive some of the attention necessary if school programs are to contribute more successfully to the development of individual potential. Cultural and subcultural differences are highly significant in determining the attitudes and values of students, their aspirations, motivations and even academic attainment.

Richard Cloward examines the relationship between socioeconomic position and academic achievement. His focus is on the special pressures of children and youth in disadvantaged city areas where deviant patterns, such as educational failures, are common. What hobbles too many children in such areas is the discrepancy between social and economic aspirations and the legitimate opportunities to achieve these goals. Slum youth, Cloward contends, share the same aspirations as other American youth, but are blocked by discrimination and other reasons largely beyond their control from reaching these goals. He suggests the usefulness of identifying the "something" in the organization of industrial societies which emphasizes upward mobility, viewing this factor as a step toward understanding the lower-class patterns of relative educational stagnancy. Stressing the relationship of educational achievement to occupational attainment, Cloward contends that youth who expect future occupational rewards to be withheld from members of their socioeconomic, ethnic, and racial groups, are unlikely to reach for high levels of educational motivation and achievement. Academic performance is devalued because the young see no practical relationship between school behavior and the realities of their future, immediate or long-range.

Studies substantiate the observation that there are marked class differentials in access to education: the lower the social class, the less likely it is that one can or will take advantage of opportunities. Inadequate educational performance may be in part a response to restrictions in the availability of education and in part a response to the inferior quality of education offered in lower-class neighborhood schools. Persisting value orientations that facilitate or impede academic achievement may stem from family, neighborhood and cultural traditions alien to the school. A child whose home and community have ignored the particular value orientations which are rewarded in the schools and whose values are, in turn, downgraded by the school, faces serious problems in adjusting to the demands and requirements of the classroom.

Cloward suggests that the basic problem of equality of educational opportunity has at least three dimensions: that equivalent facilities should be available to all regardless of socioeconomic, ethnic or racial origins of the child; that individual differences in learning patterns

should be taken into account in program planning; and that the school system should not be organized so as to favor children with a particular kind of socialization. He argues that differentials in socialization patterns are fully as important as differences in learning potential.

The evidence that members of different socioeconomic strata adhere to different values and that these differences affect educational and occupational aspirations has direct implications for program planners. For instance, the climate of the classroom and of the school can maintain or change group attitudes, depending on the kind of environment created. There is evidence as well that school climate has direct consequences in channeling individuals into streams of economic and social life. Segregation of social classes in schools tends to develop differing norms, values, and social interaction. Cloward highlights the connection between the context in which children are socialized and their perceptions, expectations and aspirations. The larger the community of orientation, the higher the aspirations of working-class youth are likely to be and the more successful their efforts to climb to nonmanual occupations.

Cloward suggests that one's economic goals influence the value placed on education and schooling (the two are not always seen as synonymous or related). Greater understanding of how educational attainment contributes to mobility and to raising occupational aspirations, in turn, increases the importance ascribed to formal schooling. In addition, data suggest that if lower-class adults can be involved in school matters, they are more likely to acquire increased interest and concern for the academic achievements of their children and the nature of the program provided for them. Other data indicate that schools are a prime weapon for reinforcing or sustaining different levels of achievement through the diffusion of educational attitudes and values among students. Teachers tend to accept, and consequently to normalize, lower standards of performance in schools in lower-class areas. There are data—if these are necessary—to bear witness that teachers must admit some responsibility for the gap between aspirations and achievements among disadvantaged children and youth.

Cloward also explores the origin of some of the pressures toward delinquent subcultures which stem, as he sees it, from the differences in opportunity systems open to youth or perceived as accessible to them. His theory is that "deviance is a result of the system of forces governing the accessibility of culturally approved goals by legitimate means and by illegitimate means." It is quite possible that schools can pursue approaches to overcome deficiencies and redirect those negative attitudes which contribute to lowering achievement in the working-

class children. Certainly, there is room for programs which affect initial and continued success for the child and contribute to the enhancement of his feelings of self-worth, to more favorable attitudes toward authority figures, to greater willingness to accept adult demands, and to increased motivation for further achievement.

There is growing evidence that the lower-class school has serious damaging consequences on the development of individuals and on society's resources as well. Data indicate that the "fact" of attending a school in a disadvantaged area is related to lower academic achievement partially since teachers adjust their norms and their standards to the particular student population, as they perceive it.

Finally, in a paper not included in this publication, C. Wayne Gordon described the influences of the peer group on the academic achievement of the adolescent. The hypothesis tested by Gordon was that major satisfactions and support from the peer group lead the student to conform to the standards of conduct which the members approve. Thus, the informal peer group becomes a powerful force for socializing and influencing the student and determining his academic performance. Of course, the standards and expectations of the peer group may be quite different from those of the faculty.

Gordon suggests that it is the informal organization, the make-up of the interpersonal relationships which are revealed in the friendship and clique groups, which provides a web of organization directly influencing the formal groupings of the classroom and the club systems. The motivation to work hard, the specific interests, the academic achievement, the vocational aspirations—all these are heavily influenced by the social system of the school. For younger children, there are data to indicate that social-emotional acceptance by peers affects the level of utilization of the pupil's intellectual ability. Pupils who are "influential" and accepted by their peers utilize their intellectual potential (as measured on intelligence tests) to a greater degree than those who are not as influential or as well accepted in the peer society.

Common Threads Emerge from the Papers

Several common themes seem to run through the papers even though they deal with different aspects of nurturing individual potential. Among the threads are these:

1. Each learner brings into the classroom with him certain potentials, values, attitudes, aspirations, perceptions and emotions which directly affect his interaction with the teacher, his peers, the content of instruction, the classroom climate, and the milieu of student subcultures.

This interaction affects the unique and total experience of the student, as well as the extent to which he develops his potential.

David McClelland has urged us to shift the focus of the talent search to what he calls the open evidence of talent in action. He hypothesizes that "talent potential may be fairly widespread, a characteristic which can be transformed into actually talented performance of various sorts by the right kinds of education." The notions of "performance of various sorts" and "right kinds of education" pose a challenge in understanding more about the different approaches to learning and different behaviors of youngsters as they confront seemingly common tasks and similar stimuli.

2. There are aspects of individual differences which have not been explored thoroughly in program planning and which must be taken into consideration. Educators have long been conscious of the processes of creativity, for example; yet they now are wondering how to shield the creative process from neurotic distortions caused by ignorance of what Lawrence Kubie calls "the preconscious functions of behavior." The implications that teachers should concern themselves with the affective and emotional, as well as the intellectual and cognitive behaviors, point to the need for more attention to the interaction between the teacher's personality and his teaching style and the child's multidimensional potential. The concern with developing different kinds of intellectual abilities—some of which have been ignored or minimized in the past—opens up a challenge to educational planners. Teachers' behavior and its consequences in terms of students' motivation, attainments and personal development is just beginning to be studied in depth.

3. There are many sources of talent potential still untapped or inadequately developed. Currently, researchers are focusing on those groups which suffer the greatest loss of developed potential. We know our schools are not serving well students who come from lower socioeconomic groups, from racial and ethnic minority groups, from the various subcultures that bear the rubric, "the disadvantaged." Some of these differentials in achievement and maturation rates stem from early verbal deprivation, some from differing valuation of the significance and possibilities of education for social and economic mobility.

There are serious challenges in the findings that teachers adapt their norms of success and standards of excellence to the composition of their student bodies: the lower the school's demands, the lower the standards. Some schools strengthen and others weaken the elements of socioeconomic status, cutting a pattern which the secondary school can seldom refashion—even when it tries. The elementary school yields

early evidences of achievement or its absence; these mark the pupil for differentiated curricula in secondary schools where, in turn, they are sorted into separate streams of life occupations and status. As teachers set varying tasks and expectations, order academic groupings within classes or classrooms, accept as normal low scholastic performance, they contribute to a student's self image and fix values and attitudes. The consequences of this process challenge the schools to develop all human resources, regardless of race, cultural background, socioeconomic status or past educational tradition. Implied in this process is the admonition to teachers to raise the educational sights and motivation for attainment on the part of large numbers of children and young people.

Schools are again concerning themselves with their role in the reduction of school dropouts and in the prevention of delinquency. With dropouts exceeding more than a million annually, it is obvious that failure, frustration, disappointment and time-wasting all contribute to the student's leaving school.

Individual potential cannot be developed by an educational program when the student has left school. It is of little value to argue vehemently for "the maximum development of all individual potential," when curricula are foisted on pupils which overlook their basic needs and differences. Greater insight into the specific learning disabilities of youngsters from disadvantaged groups and the implications of the total school-community milieu as this affects learning is needed for planners to cope more effectively with the basic elements of the educational problem.

4. The complexity of interacting forces which throttle or unleash individual potential is being recognized more and more. We have been accumulating more and more knowledge but have lagged in applying this to school practice. The importance of affective behaviors in learning deserves closer analysis. How feelings and emotions—students' and teachers' alike—interact to modify learning and individual achievement should concern all program planners. The need for teachers to monitor their own behavior in search for self-understanding and growth springs from this same motivation. Many factors and conditions complicate the task of the school in developing pupils to whatever levels of self-realization and contribution the individual can attain. The unique qualities of each student, the variables in his school environment, the cultural milieu from which he comes, all are essential strands in the organization of school programs to serve individual needs. These have merely been sampled; the syntheses are still to come.

Curriculum research must synthesize behavioral studies into more

meaningful and useful models which assimilate the complementary factors of student, teacher, content, resources and climate for curriculum design. Findings from studies of the teaching processes need to be integrated with those of learning processes.

The fresh concern for undeveloped areas of individual potential underscores the need for new kinds of curriculum research: multidimensional, longitudinal, and rich in techniques and design appropriate to the task at hand. Finally, the need for studies which focus on clarifying the instructional process—specifically on *what is learned, how, and by whom* is highlighted. A realistic approach is wanted to determine precisely the significant differences in students, teachers, content, method, organization as these interact to contribute to the nurturing of individual potential. These papers suggest that some of our thinking has been too parochial; our conceptual framework has been too limited.

Conditions for Effective Personality Change

Donald W. MacKinnon

FOR the past six years, we of the Institute of Personality Assessment and Research on the Berkeley campus of the University of California have had a rare privilege. We have studied intensively nationwide samples of men and women who have been nominated by their peers for the unusual creativeness with which they have practiced their particular art, science or profession.

The fields of creative endeavor which we have had an opportunity to study have been creative writing (Barron, 1962), architecture (MacKinnon, 1962), mathematics, industrial research, physical science and engineering (Gough and Woodworth, 1960; MacKinnon, 1961). If one considers these activities in relation to the distinction often made between artistic and scientific creativity, it may be noted that we have sampled both of these domains as well as overlapping domains of creative striving which require that the practitioner be at one and the same time both artist and scientist.

Artistic creativity, represented in our studies by the work of the writers, results in products that are clearly expressions of the creator's inner states, his needs, perceptions, motivations and the like. In this type of creativity, the creator externalizes something of himself into the public field.

In scientific creativity, the creative product is unrelated to the creator as a person, who in his creative work acts largely as a mediator between externally defined needs and goals. In this kind of creativeness, the creator, represented in our studies by industrial researchers, physical scientists, and engineers, simply operates on some aspect

of his environment in such a manner as to produce a novel and appropriate product, but he adds little of himself to the resultant.

Domains of creative striving in which the practitioner must be both artist and scientist were represented in our researches by mathematicians and architects. Mathematicians contribute to science, yet in a very real sense their important creative efforts are as much as anything else personal cosmologies in which they express themselves as does the artist in his creations. So too in architecture, creative products are both an expression of the architect and thus a very personal product, and at the same time an impersonal meeting of the demands of an external problem.

It is primarily from having studied highly effective persons in each of these domains of creative endeavor that this paper is directed to the main theme, "Nurturing Individual Potential," and to the more specific topic, "Conditions for Effective Personality Change." Only by relating the more specific topic to the more general theme can one keep a sense of the direction in this field. If one were to focus his discussion solely on the "conditions for effective personality change," he might review what is known about the conditions created and utilized in prison and concentration camps and in programs of brainwashing for the bringing about of effective, in the sense of enduring, changes in personality. Such matters are not our concern here, however, but rather those conditions within the individual and in his life space, especially his educational environment, which we have reason to believe would most effectively facilitate and encourage the development of his potentialities to be a creative person.

The creative individual, as we have seen him, is an impressive person, and he is so because he has to such a large degree realized his potentialities. He has become in great measure the person he was capable of becoming. It is for that reason that a careful examination of his characteristics, his attitudes, interests, values, cognitive styles, abilities, and the like, and the life forces which have nurtured his creative potentialities, insofar as we can discover them, is our first order of business in attempting to gain insight into the conditions which make for effective change.

It is a good deal easier, however, to describe the creative person than to say with confidence how he became the person he is. It is one thing to discover the salient traits of mature, creative, productive individuals. It is quite another matter to conclude that the traits of creative persons observed several years after school and college characterized these same individuals when they were students. Nor can we be certain that finding these same traits in youngsters today will

identify those with creative potential. Only empirical, longitudinal research, which we do not yet have, can settle such issues. Nevertheless, considering the nature of the traits which differentiate highly creative adults from their less creative peers, I would hazard the guess that most students with creative potential have personality structures congruent with, though possibly less sharply delineated than, those of mature creative persons.

The problem is further complicated by the fact that though our creative subjects have told us about their experiences at home, in school and in college, and the forces and persons and situations which, as they see it, nurtured their creativity, these are, after all, self-reports subject to the misperceptions and self-deceptions of all self-reports. Even if we were to assume that their reports are essentially accurate we would still have no assurance that the conditions in school and society, the qualities of interpersonal relations between instructor and student, and the aspects of the teaching-learning process which would appear to have contributed to creative development a generation ago would facilitate rather than inhibit creativity if these same factors were created in today's quite different world and far different educational climate.

Having noted this by way of caution, let us turn to the traits of highly creative persons and the implications, as the writer sees them, of their traits for those conditions most likely to nurture and encourage creative potential.

Traits of Creative Persons

Creative persons are, to an extraordinary degree, open to experience, to the experience of their inner life as well as of their outer environment and culture. This would seem to be almost the basic condition for change, namely that one be receptive to new elements of experience. One of the most important dimensions along which persons differ is that of the open or the closed mind. The open-minded person is keenly perceptive, the closed-minded individual is strongly judgmental. Though it is an oversimplification to state it so bluntly, it is nonetheless true that whenever a person uses his mind for any purpose he performs either an act of perception (he becomes aware of something) or an act of judgment (he comes to a conclusion about something). And most persons are inclined to show a rather consistent preference for and greater pleasure in one or the other of these; preferring either to perceive or to judge.

One who emphasizes and prefers an attitude of judging will lead

a life that is controlled, carefully planned, and orderly, and when the preference for judging is habitual and strong he becomes judgmental and in the extreme prone to prejudging. He is then the prejudiced person.

On the other hand, a preference for the perceptive attitude results in a life that is more open to experience both from within and from outside, and characterized by flexibility and spontaneity.

Several of our tests, as one would expect, reveal the creative person to be perceptive and open to experience.

The *Minnesota Multiphasic Personality Inventory* (*MMPI*) (Hathaway and McKinley, 1945) is a test designed to measure tendencies toward the major psychiatric disturbances such as depression, hysteria, paranoia, schizophrenia and the like. On the eight scales which measure the strength of these dispositions in the person, our creative subjects earn mean or average scores which range from five to 10 points above the general population's standard score of 50. It must be noted, however, that elevated scores on these scales do not have the same meaning for the personality functioning of persons who, like our subjects, are getting along reasonably well in their lives and professional careers, that they have for hospitalized patients.

For our creative subjects the higher scores on the clinical dimensions are actually less suggestive of psychopathology than of good intellect, richness and complexity of personality, and a general lack of defensiveness—in other words, of an openness to experience. We must also note, though, that there is in the *Minnesota Multiphasic Personality Inventory* profiles of many of our creative subjects rather clear evidence of psychopathology, but also evidence of adequate control mechanisms, as the success with which they live their productive lives testifies.

The most striking aspect, however, of the scores on the several scales of the *Minnesota Multiphasic Personality Inventory* for all our male creative groups is an extremely high peak on the Mf (femininity) scale.

This tendency for creative men to score unusually high on femininity is also demonstrated on the Fe (femininity) scale of the *California Psychological Inventory* (*CPI*) (Gough, 1957) and on the masculinity-femininity scale of the *Strong Vocational Interest Blank* (Strong, 1959). Scores on the latter scale (where high scores indicate more masculinity) correlate −.48 with rated creativity (MacKinnon, 1962).

The evidence is clear: the more creative a person is the more he reveals an openness to his own feelings and emotions, a sensitive intellect and understanding self-awareness, and wide-ranging interests in-

cluding many which in the American culture are thought of as feminine. In the realm of sexual indentification and interests, our creative subjects appear to give more expression to the feminine side of their nature than do less creative persons. In the language of the Swiss psychologist, Carl G. Jung (1956), creative persons are not so completely identified with their masculine *persona* roles as to blind themselves to or to deny expression to the more feminine traits of the *anima*. For some the balance between masculine and feminine traits, interests and identifications is a precarious one. Moreover, for several of our subjects, we believe that their presently achieved reconciliation of these opposites of their nature has been barely effected and only after considerable psychic stress and turmoil.

The perceptiveness of the creative person and his openness to richness and complexity of experience are also strikingly revealed on the *Barron-Welsh Art Scale* (Barron and Welsh, 1952) of the *Welsh Figure Preference Test* (Welsh, 1959). This test presents to the subject a set of 62 abstract line drawings which range from simple and symmetrical figures to complex and asymmetrical ones. In the original study which standardized this test some 80 painters from New York, San Francisco, New Orleans, Chicago and Minneapolis showed a marked preference for the complex and asymmetrical or, as they often referred to them, the vital and dynamic figures. A contrasting sample of non-artists revealed a preference for simple and symmetrical drawings.

All creative groups we have studied have shown a clear preference for the complex and asymmetrical, and in general the more creative a person is the stronger is this preference. Similarly, in our several samples, scores on an Institute scale which measures the preference for perceptual complexity are significantly correlated with creativity. In a sample of architects the correlation is +.48. If one considers for a moment the meaning of these preferences, it is clear that creative persons are especially disposed to admit complexity and even disorder into their perceptions without being made anxious by the resulting chaos. It is not so much that they like disorder per se, but that they prefer the richness of the disordered to the stark barrenness of the simple. They appear to be challenged by disordered multiplicity which arouses in them a strong need which in them is serviced by a superior capacity to achieve the most difficult and far-reaching ordering of the richness they are willing to experience.

The traits of the creative person reviewed so far suggest that the creative individual, in controlling his impulses, his images and his ideas, eschews the ego-defensive mechanisms of repression and suppression. Much of experience which other less courageous persons would repress

or deny is accepted by the creative person. But in accepting so much of his own experience, which for him as for anyone else is disturbing, he must, one would think, experience more anxiety than his more restricted and constricted peers. Evidence that such is precisely his fate is provided in a comparison of the scores of more and of less creative persons on a measure of felt and experienced anxiety, the *Taylor Manifest Anxiety Scale* (Taylor, 1953).

It is not, however, that the creative person is extremely impulsive and uncontrolled. It is rather that he has consciously to assume responsibility for the control and expression of impulses and images which in the neurotically inhibited person are beyond conscious control and expression because they are not admitted into experience. Being unconscious they are controlled in the more inhibited person, not by the conscious ego, but by the unconscious super-ego working through the mechanisms of repression and denial. Our more creative subjects not only experience more anxiety, they also have stronger egos. They score significantly higher on the ego-strength scale of the *Minnesota Multiphasic Personality Inventory*.

Cognitive Style of the Creative Person

We may now inquire into the cognitive style of the creative person. In his openness to experience, is he inclined to focus upon his immediate sensory experience, savoring what is, or does he immediately and instinctively perceive the deeper meanings and possibilities inherent in things and situations and ideas which he experiences? In other words, in his perceptions is he a sense-perceptive, concentrating primarily on the sensory attributes of his experience and centering his attention upon the existing facts as they are given, or is he an intuitive-perceptive ever alert to links and bridges between what is present and that which is not yet thought of? Does he focus habitually upon what is or upon what may be?

On a test designed to measure these two cognitive orientations—a preference for sense-perception or sensation vs. a preference for intuitive-perception or intuition (the *Myers-Briggs Type Indicator* (1958) —three out of four persons in the United States prefer sense-perception to intuition, that is, 75 percent are sensation types.

In view of this it is especially interesting to discover that 90 percent or more of each of our creative samples show a preference for intuition. The percentages of intuitives are: for creative writers 90 percent, mathematicians 92 percent, research scientists 93 percent, and architects 100 percent.

It is not that this finding is surprising; one would not expect creative persons to be stimulus- and object-bound but instead ever alert to the as-yet-not-realized. It is rather the magnitude of the preference for intuitive perception that is so striking among highly creative persons.

Closely related to the creative person's preference for intuition are his preferred interests and his emphasized values.

All the creative groups we have studied have shown essentially the same characteristic pattern of scores on the *Strong Vocational Interest Blank*. From sample to sample there has been some slight variation, but the general pattern is this: relatively high scores on such scales as psychologist, architect, author-journalist, and specialization level, and relatively low scores on such scales as purchasing agent, office man, banker, farmer, carpenter, veterinarian and, amusingly yet understandably, policeman and mortician.

This typical pattern of scores on the *Strong Vocational Interest Blank* suggests that creative persons are inclined to be less interested in small detail, in facts as such, and more concerned with their meanings and implications, possessed of greater cognitive flexibility, and characterized by verbal skills and interest in as well as accuracy in communicating with others.

The Allport-Vernon-Lindzey *Study of Values* (1951), is a test designed to measure in the individual the relative strength of the six values of men as these values have been conceptualized and described by the German psychologist and educator, Eduard Spranger (1928), namely, the theoretical, economic, aesthetic, social, political, and religious values. On this test, all of our creative groups indicate as their highest values the theoretical and the aesthetic.

For creative research scientists the theoretical value is the highest, closely followed by the aesthetic. For creative architects the highest value is the aesthetic, with the theoretical value almost as high. For creative mathematicians the two values are both high and approximately equally strong.

It is of some interest, further to note, that, despite the success with which, as entrepreneurs, creative architects carry out their architectural practice, the economic is their lowest value. Indeed in the total sample of 124 architects, the theoretical value correlates with the rated creativity of the architects +.18, the aesthetic value +.35, and the economic value −.48.

Turning now to the life histories of our subjects, we may inquire into the kinds of experiences that nurtured their creativity, and the conditions that fostered those changes in their personalities which brought their creative potentials to full development and expression. Let us now

examine the life histories of architects, since this is the group that the author knows best.

Architects, like all the creative groups we have studied, show a high sense of personal autonomy and a zestful commitment to their profession. Moreover, the protocols of their life histories have revealed a number of factors which in their early years could be expected to provide an opportunity and perhaps the necessity for the development of a secure sense of personal autonomy.[1]

Life Experiences Which Nurture Creativity

First, there is a reported lack of intense closeness or intimacy with one or both parents. It is more frequently seen in the relationship with the father rather than with the mother, but is often characteristic of the relationship with both parents. That is, there are neither strong emotional ties of a positive nor of a negative sort. There is neither the type of relationship that fosters over-dependency nor the type that results in severe rejection. Thus, although there may be a certain coolness and distance in the relationship of the child to his parents, there is at least an absence of the type of psychological exploitation that is frequently seen in the life histories of clinical subjects.

Second, and probably closely related to the foregoing, is the suggestion of certain ambiguities in the identification patterns of the architects. When asked with which parent they tended to identify themselves fifteen of them reported that they identified with neither or with both parents. Thirteen of them tended to identify with their mother and only twelve of the 40 reported an identification with their father alone.

Before speculating about the possible origin and significance of this factor, we might mention some other characteristics of the family constellations that would also tend to foster its appearance. Rather often, there existed a situation where the father was absent from the home (separated, divorced, and what not) in a literal sense, but was very much present psychologically, either because the mother kept alive the father's image or because of visits from the father and the like.

In addition, the mother was frequently an exceptionally autonomous person herself, either because she was the only parent in the home or because she led an active life with interests of her own, apart from her husband's. Thus, the architects often had both masculine and feminine models for autonomous behavior, and sometimes had only a feminine model for it.

In any case, there are at least two speculative leaps that we might make with regard to these identification patterns. In the first instance, we can go from the artistic abilities and sensitivities to the identification pat-

[1] Kenneth H. Craik. *"Analysis of the Life History Protocols of 40 Creative Architects."* Unpublished manuscript, 1962.

tern. One might hypothesize that a youngster with such artistic predilections will be influenced in his identification choices by the degree to which the value patterns of his parents are nurturant of an artistic orientation. And, indeed, the evidence provided by this sample tends to support the hypothesis. Thus, there are twenty cases in which the youngster identified with the father alone, the father having artistic interests, or identified with the mother alone, the mother having artistic interests, or identified with both parents, at least one of whom had artistic interests.

In five cases, the architect reported identification with neither parent, and in all five cases, neither parent showed artistic interests. Finally, there are six cases in which neither parent showed artistic interests and in which the architect identified with the mother. If we assume that in our culture, the feminine values of the mother are more nurturant of the artistic orientation, we might consider these cases as support for our hypothesis. In summary, then, we have thirty-one cases in support of and nine cases in contradiction to our hypothesis that the artistic value patterns of the parents are a factor in the identification choices of these artistically inclined youngsters.

We might then make a further speculative leap, going from these diffused and perhaps conflicting, identification patterns to the career choice. Thus, we might say that looking at it from the value system of our culture, architecture is a good compromise career for someone with artistic abilities and identification tensions. It is both artistic, feminine, and pure, as well as businesslike, masculine (engineering), and applied. It is a career that in some ways can replicate the tension between the dominant cultural masculinity values and the femininity values that is seen in the early identification patterns of these men.

There are other factors in the early histories in addition to lack of intense closeness and diffused identification patterns that point toward a development of personal autonomy. There is a marked tendency for complete lack of physical punishment and a complete lack of formal religious training. Thus one may infer that in the area of rights and discipline—that is, in the area of personal conduct—there was a good amount of interpersonal give-and-take. Yet with it, one may assume, went a fairly unstructured atmosphere and with that, a requirement of active exploration and internalization of a framework of personal conduct.

In addition, the architects as youngsters had a definite freedom to roam and explore and there was frequent moving by the family, thus providing an enriched environment for exploration and for, possibly, the enhancement of their visual-artistic sensitivities.

Autonomy and some sense of aloneness might be expected to appear concurrently. Reports of aloneness, shyness, solitariness, are not infrequent, nor is evidence of possible social isolation (no dating as an adolescent), although the latter evidence may be ambiguous. There is also a slight tendency for reports to be made that the parental family was in some sense or other different from those in the neighborhood.

In a number of cases, the visual-artistic ability was recognized to some extent during childhood or adolescence and, in some cases, this ability was a source of self-esteem for the youngster. In a few cases, the youngster was provided, *via* this ability, with a certain special status within the family unit. For example, in one case, the architect reports that his family always "rooted for me" during his training and professional career. However, as a general case, it appears that the visual-artistic abilities and interests were pretty much allowed to develop at their own speed and this pace varied considerably among the architects. Although in a few cases there was definite encouragement of the artistic skills, what is perhaps more significant is the general definite lack of strong career channeling pressures. This is generally the case, both for pressures away from architecture as well as pressures toward architecture by architect-fathers.

These observations permitted the conceptualizing of 17 factors presumably related to the development of autonomous, secure and creative work in architecture which can be briefly described as follows:[2]

1. Lack of intense closeness between the child and the parents and absence of psychological exploitation of the child by the parents
2. Ambiguities in identification with the parents: identification either with both parents or with neither
3. Father physically absent from home, but psychologically present
4. Mother an exceptionally autonomous person
5. Mother with artistic interests
6. Father with artistic interests
7. Father in engineering, business, etc.; mother with artistic interests
8. Lack of physical punishment
9. Lack of formal religious training
10. Freedom to roam widely and explore
11. Frequent moving by the family
12. Experiences of aloneness, shyness, isolation, solitariness, etc.
13. No dating during adolescence
14. Family different from those in the neighborhood
15. Visual-artistic abilities and interests allowed to develop at their own pace
16. Visual-artistic abilities and interests encouraged and rewarded
17. Lack of strong career-channeling pressures.

That these factors in the life history are indeed related to the creativeness of our architects is indicated in a further analysis. A credit of one point for the presence of each of these factors in the life history

[2] *Ibid.*

protocols of each of the creative architects was assigned and the total for each person taken as a score. The correlation of these life history scores with the rated creativity of the architects is +.32, significant beyond the .025 level of confidence.

It is clear from their reports that certainly not all of the creative architects had the kind of happy homes and favorable life circumstances so generally thought to be conducive to sound psychological development. Some underwent harsh treatment at the hands of sadistic fathers. These, to be sure, constitute the minority, but they appear today no less creative than those whose fathers offered them quite satisfactory male figures with whom easy identification could be made, though there is some evidence that they are not as effective or as successful in the financial and business (masculine) aspects of their profession as the others.

Finding Life Careers

Settling upon their life careers came early for some, one of whom already at four had decided he wanted to be an architect. Others were slow in coming to a professional identity, not deciding until several years past college that architecture was what they wanted to practice. In the case of several of these, the choice of a life profession was made the more difficult by virtue of the fact that they possessed so many skills and interests, providing them with the possibility of many quite different careers. Several were painters and others sculptors before they became architects and some of them continue today these artistic pursuits in a professional and not merely avocational fashion along with their architectural practice.

In school and college the creative architects were tolerably good students, but in general not outstanding if one may judge from their academic grades. In college they averaged about a *B*. But what more clearly appears to have characterized their college careers was the independence with which they worked.

In work and courses which caught their interest they could turn in an *A* performance, but in courses that failed to strike their imagination, they were quite willing to do little or no work at all. In general, their attitude in college appears to have been one of profound skepticism. They were unwilling to accept anything on the mere say-so of their instructors. Nothing was to be accepted on faith or because it had behind it the voice of authority. Such matters might be accepted, but only after the student on his own had demonstrated to himself their validity. In a sense, they were rebellious, but they did not run counter to the

standards out of sheer rebelliousness. Rather, they were spirited in their disagreement and one gets the impression that they learned most from those who were not easy with them. Yet clearly many of them were not easy to take. One of the most rebellious, but as it turned out, one of the most creative, was advised by the Dean of his school to quit because he had no talent; and another, having failed in his design dissertation which attacked the stylism of the faculty, took his degree in the art department.

The self-assertive independence which they showed early and manifested so clearly in school and college still characterizes the creative architect. In the total sample, two Institute scales, one measuring self-assertiveness, the other independence, correlate +.34 and +.43 with rated creativity.

Not only the architects, but all our creative samples, show this relative rejection of external restraints, freedom from crippling inhibitions, and independence in thought and action. One illustration of the point may be based on an interpretation of the profile of scores earned by more creative as compared with less creative subjects on the *California Psychological Inventory*. In the interest of clarity of presentation, I shall once again present data only for architects.

On the first cluster of scales, which are measures of poise, ascendancy and self-assurance, creative architects reveal themselves as dominant (Do); possessed of those qualities and attributes which underlie and lead to the achievement of social status (Cs); poised, spontaneous, and self-confident in personal and social interaction (Sp); though not of an especially sociable or participative temperament (low Sy); intelligent, outspoken, sharp-witted, demanding, aggressive, and self-centered; persuasive and verbally fluent, self-confident and self-assured (Sa); and relatively uninhibited in expressing their worries and complaints (low Wb).

But it is on the second cluster of scores, those having to do with responsibility, socialization and self-control that creative architects differ most widely from less creative architects. Their scores reveal the creative architects to be relatively free from conventional restraints and inhibitions (low So and Sc), not preoccupied with the impression which they make on others and thus perhaps capable of greater independence and autonomy (low Gi), and relatively ready to recognize and admit self-views which are unusual and unconventional (low Cm).

As for the next cluster of scales, creative architects, like architects in general, are strongly motivated to achieve in situations in which independence in thought and action are called for (Ai). Yet, unlike their colleagues, they are less inclined to strive for achievement in settings

where conforming behavior is expected or required (Ac). In efficiency and steadiness of intellectual effort (Le), however, they do not differ from their fellow workers.

Their scores on the last three scales reveal the creative architects as definitely more psychologically minded (Py), more flexible (Fx), and as having more femininity of interests (Fe) than architects in general.

Implications of the Findings

What, we may now ask, are the implications of these findings for the conditions for effective personality change where the primary concern is for the nurturing of creative potential in school and college?

What to me is most strongly suggested by our findings is that we should seek to develop in our students a capacity for intuitive perception, an immediate concern for implications, and meanings, and significances, and possibilities beyond what is presented to the senses. This is not to suggest a slighting of facts, for there is a great wealth of information which every educated person must possess. Without a richness of experience, which may include a considerable body of fact, intuitions may be original but they are not likely to be very creative. Yet I would urge that in our instruction we never present a fact for its own sake, and that in our testing of our students' knowledge we shun questions which require no more than identification of facts. I am convinced that we can measure information which students have learned more reliably, more validly and more economically by objective tests than by essay examinations. Yet it remains true, I believe, that a student's preparation for and actual writing of an essay examination forces him to exercise his intuitive perception.

On another occasion I said what I am now saying by reminding my colleagues that "*ledge*, the second element in the word *knowledge*, means sport. Knowledge is the result of playing with what we know, that is, with our facts. A knowledgeable person in science is not, as we are often wont to think, merely one who has an accumulation of facts, but rather one who has the capacity to have sport with what he knows, giving creative rein to his fancy in changing his world of phenomenal appearances into a world of scientific constructs" (MacKinnon, 1953). And so it is in all fields, not science alone.

Rote-learning, learning of facts for their own sake, repeated drill of material, too much emphasis upon facts unrelated to other facts, and excessive concern with memorizing, can all strengthen and reinforce sense-perception. On the other hand, emphasis upon the transfer of training from one subject to another, the searching for common principles

in terms of which facts from quite different domains of knowledge can be related, the stressing of analogies, and similes, and metaphors, a seeking for symbolic equivalents of experience in the widest possible number of sensory and imaginal modalities, exercises in imaginative play, training in retreating from the facts in order to see them in larger perspective and in relation to more aspects of the larger context thus achieved; these and still other emphases in learning would, I believe, strengthen the disposition to intuitive perception as well as intuitive thinking.

While our data suggest that a rich development of intuitive powers facilitates creativity, they do not deny the necessity of accurate sense-perception. It is a matter of which gets emphasized. This is true also with the perceptive and judging attitudes, both of which each of us possesses but to different degrees. One must often enough judge and evaluate one's own experience, but it is important that we not prejudge, thus excluding from perception large areas of experience.

The danger in all academic instruction is that we criticize new ideas too soon and too often. Training in criticism is obviously important and so much emphasized I do not need to plead its case. Rather, I would urge that an equal stress be placed on perceptive open-mindedness, discussing with students at least upon occasion the most fantastic of ideas.

It is our duty as professors to profess what we have judged to be true, but it is no less our duty by example to encourage our students to be open to all ideas and especially to those which most challenge and threaten our own judgments. We give lip service to the university as the testing ground for new ideas, but too often our emphasis is upon testing rather than on new ideas.

I am impressed by the discrepancy between the score our creative subjects earn on the achievement via independence and the achievement via conformance scales of the *California Psychological Inventory*. I am also struck by the descriptions of their behavior when in college. These data are congruent with all our observations in assessment which suggest that these subjects are now and for a long time have been independent characters. It is an independence which manifests itself not in footless rebellion but in the accomplishment of goals which the individual sets himself and which he achieves in his own unique fashion. I would infer from this that if we are to encourage creativity in college students we must give them a maximum of freedom in achieving their educational objectives.

It is our task as educators to set goals for the college and for our individual courses. The goals, I believe, should be set in only the

most general fashion, but they must be set high enough to challenge the student and to involve him in the overcoming of obstacles.

More specifically I would suggest that no course or seminar deserves a place in a college curriculum unless it requires of the student the solution of some problem—a research project, a term paper, etc. The requirement, stated in only the most general fashion, permits the student to determine what specifically his own problem will be. Thus he chooses, he sets the problem, and having done so, he might well be left to solve it in his own way. Thus, we would provide the student with what I believe to be one of the necessary conditions for creative achievement: the undertaking of the solution of a problem where the degree of difficulty and frustration is great and the drive toward accomplishment is persistently strong.

If goals are set high enough, repeated periods of frustration will be experienced. It is at these times which I have called periods of withdrawal from the problem that the college community, if it is a stimulating intellectual environment, can contribute importantly to the nourishment of creativity. For it is often in these periods of renunciation of the frustrating problem that those accidents which induce sudden insight and are thus not accidents at all, since one is set for them, occur.

This, as I see it, is the meaning of serendipity, the finding of valuable or agreeable things not sought for. If, when a student withdraws from a problem which has repeatedly frustrated his attempts at solution, he moves in an environment alive with ideas and stimulating converse, the chances of the insight-inducing accident's occurring are maximized.

Finally, I think our data should remind us that our creative students may not always be to our liking. Almost certainly we will at times find them difficult to get along with. Yet if we recognize that some of their behavior which may be most irritating to us arises out of a struggling attempt to reconcile opposites in their nature and to tolerate large quantities of tension as they strive for a creative solution to difficult problems which they have set themselves, we may be in a better position to support and encourage them in their creative striving.

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Research in Protecting Preconscious Functions in Education

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THE implications of psychoanalytic psychiatry for education arise out of the continuous interplay between the learning process and the ubiquitous masked neurotic process. I will summarize this in as few words as possible.

Implications of Psychoanalytic Psychiatry

1. In the present state of human culture (any human culture of which we have knowledge enough to warrant a judgment), neurotogenic processes begin in infancy and early childhood, and persist throughout life. They are not diseases engrafted on normal development by some outside agency. They arise as the result of unsolved problems in human development. Consequently they are quite literally universal.

2. From earliest childhood and throughout life, learning is a two-way interchange. That this interchange occurs between the teacher and the taught is obvious. Equally obvious is the interchange between one student and another. Both of these interchanges carry the imprint of the buried rivalries, affections and rebellions which are derived from the nursery years, but which because they are buried tend to become distorted, exaggerated and in disguised forms appear as persistent symptoms.

There is a third and subtler interchange, i.e., between the student and the subject matter. This arises because the subject matter in itself is treated almost as though it were the image on a Rorschach card, or a TAT drawing, something onto which each student projects out

of his own buried emotional problems. This occurs from kindergarten years into the upper reaches of post-postgraduate scholarship. The consequence is that studying, learning, the incorporation of new data, the reassembling of this new data into new combinations is a mixed ingestive and projective experience. The implications of this fact for educational processes have been largely overlooked.

3. Each of the components in these two-way interchanges carries traces from the past, e.g., of nursery behavior and of nursery battles, which operate on all levels: conscious, preconscious and unconscious. Much of it is dominated by unconscious and therefore neurotogenic distortions; and if this neurotic carryover is not corrected early, the unhappy result is that it tends to focus on the educational process and even to be intensified by it. Where this occurs, it is only a happy accident if this intensified play of neurotogenic forces fails to impede and distort the learning process, and the relationship of student or scholar to what he is learning.

4. It is in part a consequence of these facts that in the whole history of our culture, erudition has always had a purely accidental relationship to wisdom. Another way of saying this is that erudition and maturity have almost no relationship one to another. As long as this remains true, we can no longer evade the conclusion that the cultural process which is embodied in our educational system has failed. It has failed to make man mature. It has failed to free men from the neurotic distortions inherent in the early steps of the growth process. It has failed to give us tools by which we can transmit from one generation to another whatever increments of wisdom the passing generation may have gained. In short it has failed to make human nature more plastic. The result is that like robots, each generation repeats the mistakes of the past.

5. As a further result of our failure to face up to the play of neurotogenic forces in the educational process, erudition and creativity itself are often at war with one another. The realization of this does not depend upon the testimony of psychiatrists alone. Szent-Gyorgyi, the Nobel Prize winner, testified to this as recently as June 1961 at meetings in Montreal. Furthermore, many engineering educators can tell you that creativity rarely survives their educational grind. To put it more precisely, creativity rarely survives in the educational rat race which we call postgraduate education.

6. Yet we could and should be able to win victories out of these cultural defeats. The very fact that the classroom and playground in early years constitute a soil into which the unsolved and half-buried problems of the nursery years are transplanted gives the school an

ideal opportunity to enable the child to work out these problems and to resolve them. Indeed it is precisely here that the preventive application of modified psychiatric techniques could be fused with the educational process. At present the school intensifies the neurotogenic influences of these conflicts, by using its prestige and influence to bury them more deeply. Nor are they inactivated as this occurs. They become time-bombs. Yet schools need not continue to do this.

The key which would unlock this prison door would be the early introduction into the educational process of techniques by which that which the child is burying could be exhumed, even as he is burying it. In the pursuit of this goal adults must abandon the conspiracy of silence in which we shroud those many emotionally charged facts, which in spite of their painful nature are vital factors in human development. This lesson derives from psychotherapy.

Yet to block and prevent the splintering of experience into unrelated, inaccessible and repressed divisions is not the same as it is to reunite that which has already been divided. The effort to prevent fission is not the same as the re-fusion of that which has already been fissioned. Therefore the prevention of fission in mental life must become an integral part of the educational experience. It cannot be done just once. It must be repeated year after year through each phase of the child's development, from kindergarten through the ultimate years of post-postgraduate education.

Research Can Lead to Answers

As educators none of us has a right to be complacent about the present state of affairs. Nor should anybody allow himself to dream that any other educational system of which we have any knowledge, has solved these problems, not German, French, British or Russian. This would be that type of oversimplification which certain persons, politicians, or representatives of news media can permit themselves: but not the educator.

I have no easy answers to the questions these statements raise. Indeed all that I can do here is to suggest general lines of research which can lead to answers. Sometimes in moments of discouragement I cannot help wondering whether this serves any purpose, when one of the effects of the universality of masked neuroses is that people defend themselves by shutting their eyes and ears to any evidence of the existence of the ubiquitous pathology in human development. Yet if I were wholly devoid of hope, I can assure you that this would not be presented here.

The challenge, therefore, reads as follows: "How can the educator educate without destroying something precious, vital and irreplaceable?" This searching question is not peculiar to formal education. It is another form of the question which every honest parent must ask himself: "How can I bring up my child without doing him harm, indeed without interfering with his healthy growth?"

Again this is close to the question which every honest psychiatrist must ask himself: "How do I learn to use psychotherapeutic processes without at the same time becoming psychonoxious?" Because this restatement of the question may surprise the reader, I would remind him that any process that has the power to help must also have the power to harm, whether it is education, psychiatry, religion or a pill. The two cannot be wholly dissociated.

Therefore I translate the challenge further into a question which I have presented to educators and also to parents on many occasions: "Can we find methods by which we can educate without distorting both the educational process and the growth process itself?" Or to phrase the question more specifically: "How can we equip ourselves with the facts and the tools which we will need in life, without limiting the imaginative freedom with which we will want to use these facts and tools after we have acquired them?"

We have learned that input-overload through the excessive use of grill and drill can tumble the learner into an abyss in which paralysis becomes the equivalent of ignorance. Out of this can emerge either a special form of the idiot-savant, the man who is a scholar in his field but humanly speaking an ignoramus, devoid of wisdom, imprisoned by hidden neurotogenic inner processes, which freeze him into labored uncreativity.

The extent to which input-underload through excessive permissiveness can do similar harm is not yet clear. Yet we can recognize the uncluttered mind at this end of the spectrum, master of nothing, free of any burden of facts but equally under the dominion of neurosis. Between the neurotic ignoramus and the neurotic scholar there is not very much to choose, except that the neurotic ignoramus is almost always more fun, or at least less objectionable because usually he is less pretentious.

This then is a problem to face and a challenge to consider. Yet the purpose here is not merely to restate the challenge. My goal is rather to indicate some of the steps toward research on these problems, with techniques which are available today and which were not available even a few short years back. To make this clear will necessitate a condensed and somewhat technical statement.

Research in this area derives from a basic conception of the nature of thinking processes. There is abundant experimental and clinical evidence to indicate that traditional conceptions of how human beings think and learn have started from a natural but totally misleading assumption *that we think and learn consciously*. This is not true. Conscious processes are important not for thinking but for sampling, checking and correcting and as tools for communication. The intake of factual data about the world around us is overwhelmingly preconscious, i.e., *subliminal*. This preconscious input consists of an incessant subliminal bombardment, which goes on both when we are awake and when we are asleep.

All afferent modalities contribute to this; but the roles they play vary in the waking and the sleeping phases. In the waking state the dominant input is exteroceptive and proprioceptive. In sleep, as in the experiments in relative afferent isolation (which has been misleadingly miscalled "sensory deprivation"), the dominant input is enteroceptive (i.e., arising from the body's interior), with a marked reduction of proprioceptive input (i.e., from muscles, joints, tendons and deeper layers of skin), and with a near elimination of exteroceptive input (i.e., input from distance receptors). Yet whether the input is largely from distance and surface receptors (as in the normal waking state) or predominantly from within the body (as in sleep), the major input is always subliminal. The conscious component is never more than a weighted sample of the total input. This fact is one of the basic yet most neglected psychophysiological facts, and one which has relevance for all educational processes.

Second, the bits of information which are furnished to us in this way, whether subliminal or conscious, are then *"processed"* in the machine that we call the brain. This too is done on a subliminal level. All of this is just another way of saying that most if not all of our thinking is preconscious rather than conscious. Here again the conscious component is only a weighted and fragmentary sample of the continuous stream of preconscious processing of data. This has been demonstrated experimentally and clinically and also in the testimony of creative writers, artists, mathematicians, and scientists. Their learning and their thinking consist of just such a continuous preconscious processing of experiences, from which the major input is subliminal.

Of this continuous preconscious stream we do conscious spot-sampling; and this is where our symbolic tools enter into the picture. We sample both the input and the preconscious stream by means of combinations of symbolic units. In its more primitive form, as in dreams, this

process of sampling consists of fragmentary, condensed, after-images of visual memories. These are the subtle hieroglyphics of the dream which always sample and represent not merely one thing at a time, but many things simultaneously. We can observe and study such fragmentary, condensed visual after-images not merely in dreams, but also in other processes. This involves the externalization (or projection) of fragments, as though we were seeing them on a screen or hearing them from a phonograph. Therefore the sampling process itself and its symbolic representations consist of projections which utilize the data from distance receptors, i.e., the visual and auditory modalities.

These then are regrouped into larger generalizations (or abstractions) which in turn are represented by those subtle and flexible symbolic tools, which constitute words and numbers. Words then are grouped into phrases and numbers into equations; phrases into sentences and paragraphs, equations into mathematical models. This elaboration from the elementary building blocks of the sampling process provides us with exciting and magnificent new tools: but it remains a *sampling* process and not a *thinking or learning process*. The point is that sampling is not thought. *Yet it is this conscious sampling which has always been mistaken for thinking.*

I have already indicated that the conscious sample of the preconscious or subliminal input is not the total input. It is only a meager and weighted fragment of the whole. Were it otherwise, the input into our thinking apparatus would be impoverished and our thinking processes would become pedestrian and hamstrung. We must keep constantly in mind the fact that the sampling process is always fragmentary, and that by its very nature sampling must be slanted by emotional processes, many of which are themselves subliminal.

The final step is when the sample of the input to which we have given symbolic representation is projected again in the processes of recall, reproduction and communication. We distort as we sample. We distort what we recall of the sample. And we distort as we communicate. By these steps we distort everything that we take in as we take it in, and again as we record, recall and communicate it.

It is clear that what remains cannot be a true representation of the external world, or of what we are trying to learn, or of what is processed internally in the learning process, or of what we "create" by recombining units into new patterns. I once put it that unwittingly we distort what we perceive, and then learn what we have distorted. Psychologists, psychiatrists, neurologists, neurophysiologists, have erred together in their undue emphasis on the conscious components of mentation. This has misled the educator into neglecting the *preconscious* instrument of learning, which

is the effective instrument of recording, processing and of creating. We should learn how to do better than this. The question is how?

Three Critical Phases

This is the basic challenge which psychiatry brings to the educational process. It is with us at every step in the growth of every child. Yet in at least three phases during the process of growing up, this general problem is intensified. This was brought sharply to my attention at a conference of engineering educators in Boulder, Colorado, sponsored by the National Science Foundation. In the course of these deliberations it became clear that this problem confronts the educator not merely once but as a recurring challenge throughout the course of the whole educational process because there seem to be three periods in which these problems crystallize into major crises. I do not mean that this occurs three times in the life of each student, but rather that there are approximately three phases in human development during which students are peculiarly vulnerable. As educators we have paid too little attention to these phases.

The first phase is almost universal and occurs in the early years, somewhere between the ages of three and six. In this period with rare and still accidental exceptions, children lose their original native capacity to make free use of creative imagination. Before this the uninhibited child manifests a magnificent facility in learning new things painlessly, spontaneously, without repetition, even on the very first exposure. In their responses they exhibit an equal freedom in body mimicry, in spontaneous dance, in tunes, in facial expressions, in the use of color and form, and above all in the imaginative and poetic use first of sounds and then of words. At this early age the child takes his experiences apart and puts them together into new combinations, precisely as he plays with his simple early toys.

Then, unhappily, as the child acquires the capacity for formalized symbolic representation of experience, a more pedestrian pace and process take over. At the same time he is struggling in the tangled toils of his early loves and lusts and rivalries and hates. Consequently the "three Rs" inherit the influence of these struggles and become the wardens of a jail which gradually imprisons the child's once free creative capacity. Do not misunderstand me. I have no objection to teaching a child how to relate his fantasies to reality, how to correct his unruly imagination, how to distinguish between reality and dreams, and ultimately how to represent his internal experiences by externalizing them in drawings and words and numbers as he learns how to read, write or count. All of this

is essential. The problem now is how we can learn to accomplish this without paying the enormous price which we have taken for granted in the past.[1]

A second crisis occurs during the years of transition from puberty into adolescence. That this is a period of high emotional complexity is well-known. It is not always realized that its inner storms are projected onto every object in the outer world, even onto innocent and inanimate objects or even onto "nonsense" syllables. The pubescent child giggles at innocuous words, giving each a forbidden connotation. He will find something surreptitiously bawdy in words like "friction." A Boy Scout rubbing two sticks together will find in this his special overtones and undertones of taboo. Sometimes I wonder whether it makes any sense to attempt to teach anything during this phase. It is a phase during which many previously bright young school children suddenly are caught up in fear, guilt and depression, which may manifest itself only in a loss of performance capacity in school.

It is possible that we would save time and salvage many a child's capacity for creative thinking and learning if he were plucked right out of school for a year or so during this critical period of change. I am not making any across-the-board recommendations of this kind. I am simply challenging us to have the courage to search more freely for alternatives to traditional sequences, and not to be anchored to the rigid molds of the past. Obviously we would be equally rigid if we were to pluck every child out of school at the same age, when some go right ahead without trouble and when the ideal age for such an interruption might vary widely.

The educator may rightly ask whether psychiatry has the instruments with which to determine whether in any individual child the educa-

[1] I do not doubt that the free use of the whip can teach some children to read, spell, write and count better. Yet I am sick of stupid misconceptions about this, sick of the type of thinking which we find in our newspapers and periodicals. I am sick of the stupidity which is leading so many demagogues to think that we can go forward by going backwards, that if we imitate everything which was wrong in German, French and even British education we will compete more effectively with everything that is wrong in Russian education and which Russia borrowed from Germany and France and England. Has no one asked what percentage of French, German, British, Russian children are effectively taught by grill and drill? What percentage of them are merely dropped by the wayside?

It is easy to create the illusion of success if we discard our failures. If we use any teaching methods as a screening device, thus ridding ourselves of those who cannot learn by that particular method, we can produce spuriously a perfect score. Yet then we will never discover how many of the discards might have learned by other methods. I am proud of our American effort to try to teach all children. I do not underestimate the difficulties which this goal creates. But these should not lead us to inflate the apparent successes of other countries which try to teach only those students who can use traditional methods, discarding the rest.

tional process should be interrupted, and when; and also when it can safely be resumed. I must answer, "No, we do not have such tools." Yet I would add that this is in part due to the fact that school people have never asked us and we have never asked ourselves to develop such instruments. That they could be developed, I have no doubt.

Several variable years later comes the third crisis in education. The student is on the way to becoming a "scholar," i.e., an advanced graduate student. He has reached a period when he should be flowering into the early phases of greatest creativity. Instead all too often it is here that the *coup de grace* to creative learning is given, as our engineering educators and indeed all other postgraduate teachers well know. By this time little may be left of the student's original creative potential.

Some survive these three destructive crises with their capacities intact to learn freely and to create. Yet such survival is today a happy accident. For the majority of the survivors, their mere survival in the postgraduate rat race occurs at the cost of later creativity. We learn to our dismay that mere graduation, the passing of exams, the winning of advanced degrees, and even of initial positions on the bottom rungs of the academic ladder are no measures of creative power.

I hope that no educator will think that this is an attack on him or on the educational process; even if in the heat of writing I may choose a word which is unclear as to its intent, and thus encourage such a feeling. I do not mean to leave this impression. Any impatience I may betray is directed quite as much toward my own colleagues in psychiatry and medicine (including the psychoanalytic psychiatrists among whom I count myself) as it is toward teachers or parents in general. My real anger is against any complacency on the part of any of us over existing or past traditions.

For me Pollyanna is the only true pessimist. Pollyanna secretly feels that things are so bad that the only way to make life endurable is by pretending that the badness does not exist and by finding consolation in sentimentality. The only optimist whose optimism is a creative force and not just soothing syrup is the person who can face just how bad and how inadequate the past has been, out of a sturdy hope that with hard thinking better ways can be found. In this spirit, then, I hold that the greatest optimist in medicine is the pathologist who has the courage to study our mistakes at the autopsy table. Similarly I plead here for pathologists among educators.

I have often commented that in the old days parents used to say, "What did I do to deserve a brat like that?" Today the parent says, "What did I do?" This marks a cultural revolution, even when today's parent exaggerates the implications of his question and feels that

he is sufficiently omniscient and omnipotent to have avoided all catastrophes if he had only tried. There is a parallel here. In the past the teacher said, "What did I do to deserve this lump?" What I am urging is that as educators we ask ourselves, "What do we do to produce this lump?" "What do we do to creativity as we teach?" This applies to all of us, parents, teachers, psychiatrists. How do we, as we educate, contribute to the destruction of the creative potential which is so universal and spontaneous and free in every uneducated child who is not defective, and even in many defectives. Why does this creative potential survive accidentally in just a few?

This is the critical test of the failure of human culture and of every single human cultural instrument. As doctors we must have the courage to face the fact that a patient is dying. Only then can we hope to discover cause, cure and prevention. If as educators we pretend that things are good or even "not so bad," then we will all do just that much less. Unless we accept the full reality of the problem, we will invest less money, less personnel, less time, less space, and above all less thought in its exploration. Which brings me straight to the question of research.

Research for New Processes

My deepest conviction is that of the need for research. Certainly every human being must learn to use the basic tools. Yet what we need is basic research in education to discover new processes by which to impart the free and spontaneous use of these tools without crippling and imprisoning the child's creative potential. Up to the present time this basic educational problem remains unsolved.

An analogy may make my point clearer here. The freely gifted athlete (the so-called natural athlete) can imitate with his body anything he sees anyone else do even once, and sometimes do it better than his experienced model. He may see someone swing a tennis racket, a baseball bat, catch and throw a ball, skip rope, or skate. He then picks up the bat and ball or the tennis racket, or the lacrosse stick or puts on the skates and in a moment uses them with natural precision and grace, better than the model whom he has been watching. He has a freedom to move and to put new movements together into new combinations with confidence, with bodily imagination and without anxiety. He is like the naturally gifted and photographic artist who looks at something casually, hardly glancing at it, merely scanning it, and then with a piece of charcoal reproduces it automatically and faithfully. And then he can go further and can take it apart into its fragments and play with it, elaborat-

ing out of the initial representational image an emancipated product of free creative fantasy. This may be lost, not gained or enhanced by repetition. This is what I mean by free learning, which can be destroyed by drill and grill.

Indeed there is much evidence that the best learning is effortless learning; as can be demonstrated under hypnosis. The amount of drill and grill needed may in fact be a measure of the inefficiency of the learning process, and of the extent to which neurotic mechanisms impede it. The need to use drill and grill seems to be rather a result of a loss of the freedom to learn. We have always known that we learn to swim in winter and to skate in summer. If we stop to think, we know that by grinding in error, practice makes imperfect far more often than it makes perfect. The challenge to education (as to science) is to search for other paths to the same goals, paths which are suitable for the work of education at every level and stage, paths which teach without imprisoning and destroying.

How then can we search and research for new methods? All research must start with precise observations. On this I am certain that we can agree. Yet how to make more precise observations in this area? I keep saying to my colleagues that the incredible wonder about psychiatry and analysis is that it has been able to make any progress at all. This is because so much of our raw data consists of brief impressions of evanescent, fleeting moments of behavior. They are here and gone in a flash, never to recur, never to be re-enacted or relived in exactly the same way. The moment of action is gone, and in that moment the actors have changed. Even if they try to reproduce what they have just thought or felt or done, the reproduction can never be identical.

It is this fleeting moment which must be studied. For this purpose it would have to be perceived and recorded and recalled with precision. Yet we know that during the whole experience the observer himself is emotionally involved. All of this is true not only of the therapist. It is equally true of the teacher and of the parent. If we do our jobs well, all of us have to be emotionally involved in swiftly moving sequences of events. Yet when we are involved emotionally, we are hardly free to make precise objective observations, to record them accurately, or to recall them without bias. Small wonder that all of us in these three roles have been slaves to the past. Parents and teachers and psychiatrists have all been dependent for their basic data upon their imperfect and fallible memories of visual and auditory perceptions which are themselves subject to distortion.

I would remind the reader of Abraham Kaplan's magnificent comment that science begins to come of age only when it abandons the doc-

trine of immaculate perception. In states of high emotional involvement we make our highly maculate perceptions of moments that are passing swiftly and cannot be recaptured. And then we have to redistill this material through fallible processes of memory, and reproduce them with equally fallible techniques of reporting. Furthermore we can never go back to re-examine our primary data ourselves, nor compare our observations with those made by others on the same data. All of this violates not only basic scientific principles, but elementary common sense. We can call in a colleague to look through our microscope and tell us what he sees. And we can go back to the microscope ourselves as many times as we want. In psychological affairs in the past none of this has been possible: not in the clinic, the school or the home. We had to try to see it right the first time and to remember it right and to report it right. Because this is humanly impossible I am not amazed that we have been so bound by tradition. Rather I am amazed that we have made any progress at all.

Yet this is why a new day is visible over the horizon for our respective fields. Techniques are now at hand whereby we can record in minute detail the behavior of a child in his home, as a patient, as the subject of an experiment, or as a student; and we can record at the same time the behavior of parents, therapists, experimenters and teachers, and of the interplay among us all. We can then sit down to observe these recordings and films not once but a hundred times; and we can have not just one observer, but a dozen, to discuss and compare what each one sees. Any individual moment of human behavior is itself a ten-ring circus. Therefore it is only by repeated observation by many observers that we can take it all in, take it apart and put it together again as in all other fields of science. We must all be in the same boat here. We must have the humility to study ourselves in our several roles as well as the young folk we struggle to educate. And now, for the first time in history, the life sciences (among which I rate education as the most important) can begin to meet this basic requirement of scientific methods. The introduction of grubby gadgetry brings the study of the learning process into line with other areas of science. Gadgets of course introduce their own errors. So did the microscope. But science progresses by learning to recognize the artifacts brought in by new instruments, by learning to limit and control them, to make them uniform, and to allow for them. We will have to learn how to do this with the new gadgetry of educational research.

What I am saying implies that the school from which we are to learn new ways of education must be both a school and a laboratory. And just as there are a certain number of research hospitals among

every group of hospitals, so every public and private school system must set up budgets, facilities and personnel for research schools. Not every hospital is a discoverer of new knowledge; but medicine would not have made its incredible progress if there had not been many hospitals that were literally built around their laboratories and their autopsy rooms. Such hospitals may have professional staffs of medical scientists several times as numerous as their patient capacity. Without his even knowing it, each patient is the focus of multidisciplinary research by a team. Yet these are also the hospitals that give to that same patient the best service, the best treatment. There is no conflict between research and treatment. There need be none between research in education and education itself.

Research Schools Are Needed

This is precisely what we need in education: research schools to parallel research hospitals. The best schools of tomorrow will be the schools which carry on daily basic research in every detail of the education process, schools with observation chambers and recording equipment, schools with research staffs, schools with at least as many professionals as students. There must be research scientists in education working beside the general practitioners of education, just as there are research scientists in medicine working beside the practitioners, each learning from the other. The practitioner reminds the research man of the full complexity of problems as these arise in the classroom and in real life. The investigator reminds the practitioner of the need for more precise methods of observing and of recording and documenting his observations. Each is the conscience of the other: which is why as individuals they sometimes do not get along too well together: they may even fight: but the marriage between them is indissoluble.

There will be schools where teachers can sit down with consultants from the fields of child neurology and clinical psychology, cultural anthropology and child psychiatry and child analysis to study films of children alone, and in the classroom, and on the playground, films to give fragmentary samples of episodes in the life of the class as a whole, episodes in the daily life of the group, episodes in the daily lives of special individuals in the group, films which follow the same individual children through years of growth. Such sessions for review and study of what goes on will take time. This is why these schools will need research and teaching staffs several times as large as even the best staffed schools of today enjoy. Yet these sessions for the study of recorded basic data will in the end be as important for each child as are the hours that the teacher today spends marking papers. They will bring the teacher into

closer touch with the living spirit of the child. Therefore they will mean at the same time a steady expansion of the spirit of the teacher as well. It is along these lines that I envision studies evolving which can salvage our future in education from enslavement to the past as in medicine and psychiatry.

Note that I come up with no ready answers. I have no quick panaceas to pull out of my back pocket. I have only techniques by which we can accumulate precise primary observations; and not only of the child in relation to us, but of ourselves in relation to the child. Let me make this point clearer. I retired from practice two and a half years ago. I retired in order to devote my time to teaching and writing. What I teach the young psychiatrist is not merely to observe the patient, but even more to observe himself in relation to the patient. This he can do only in one way: namely by seeing himself in action in brief rushes of films, and by hearing himself on tape. I always know that a young man has started on the long road to becoming a psychiatrist when in the presence of a group of his peers he gains the courage to say publicly and without defensiveness or shame: "What I said was not so bad; but why did I have to say it that way?" Or even, "What I said was not so bad. The way I said it was not so bad. But why did I have to look like that?"

Something like this must happen to every teacher in the process of learning more about how to teach without destroying. And the same thing must someday become part of the training for parenthood. Just let us imagine for a moment what it might do for our children and for our vision of family life if no one could even be licensed to have children until he had been forced to study films *of his own behavior* in relation to infants and children during long hours of work with them in day nurseries, nursery schools, kindergartens, primary classes and playgrounds. Such a study of our own images might even teach future parents a little humility. And the same goes for teachers and psychiatrists.

Furthermore there may be a lesson for education in the fact that in psychiatry it is the child psychiatrist who receives the longest training. The small child is acutely responsive to cues to which the older child has unfortunately lost his original sensitivity. One of the manifestations of the influence of universal concealed neurotic mechanisms is the way in which we wall ourselves off from innumerable subliminal cues as we grow older.

The little child may not yet have been damaged by his elders. He can still respond to these cues. Yet we must have free teachers if we expect to develop free children. Therefore the younger the child, the more critically important it is for his teacher to have won his way to freedom through meticulous self-study and self-awareness. Therefore the

teacher of the small child has to be even more subtle, healthier, freer, more plastic than the teacher of the graduate student.

Let me finally focus my attention back on the critical issue with which I began. This is the danger inherent in a premature emphasis on articulate, conscious formulations of what one is learning, a premature demand on the student to convert new data into articulate forms, a premature demand that he test what he is learning as he is learning it by reviewing it consciously, that he examine through conscious symbols that which he has perceived largely at a subliminal level, and that he reproduce it and project it prematurely through conscious symbols.

This premature introduction of conscious sampling, through the repetitive emphasis on drill and grill, is precisely what makes jailors out of the processes of conscious sampling and conscious symbolic representation. Conscious processes thereby become inhibiting and paralyzing forces which restrict the free play of preconscious function. Therefore the goal of basic research in education must be to find better substitutes, to find other ways of tapping what is going on, of finding out what is being taken in subliminally and what is being processed preconsciously. We must find out how to dip a tin cup into the rushing preconscious stream without damming it up or diverting it. This sampling process is not itself education; but it can become an important adjunct to education, a guide and a corrective, provided that it is not allowed to become a paralyzing, hamstringing or distorting implement. This is what I am challenging us to work together to discover.

Therefore I say to Congress, to our States and our municipalities that we need urgently to parallel the National Institutes of Health with a National Institute of Education with experimental schools and laboratories and funds for research.

Research on Enhancing Productive Thinking

James J. Gallagher

CURRENT educational research related to productive thinking in the classroom is an exciting topic. It is particularly exciting for the educator and the teacher because much of current research promises to be of practical value in improving classroom operation. This statement could not easily have been made about educational research in past decades. Five or six general areas of investigation will be discussed here, with a specific example from each which illustrates the general trend.

It would seem reasonable to believe that there is more than a casual relationship between the present virulent criticism of American education and the renewed interest in research in, and evaluation of, the educational program. Education has been forced to defend itself and, in the course of this defense, is modifying and changing many time-honored concepts. The criticism comes from many different directions and the attacks seem to rest on two main points. First, the critics held that teachers, and those who instruct them, have not enough knowledge concerning the content areas in which they teach. Second, the critics argue that curriculum content is presented at a low conceptual level, much lower than the students could master if given the opportunity. An associated criticism is that there has been too much emphasis on social and life adjustment in the school curriculum. This point has been made by Bestor (1953):

American intellectual life is threatened because the first twelve years of normal schooling in the United States are falling more and more completely under the policy making control of a new breed of educator who has no real

place in—who does not respect and who is not respected by—the world of scientists, scholars, and professional men.[1]

The same criticism is made indirectly by more responsible critics, such as Bruner (1960), who suggests that if we expect to teach the core of a subject area we must involve ourselves in reeducating teachers. The criticism is still there, although in more sympathetic form.

Let us take another quote. "Too much high school science instruction is descriptive and stresses rote learning. Too little is conceptual and provocative; there is too little stress on reflection and analysis."[2] Who said it? Bestor? Rickover? Conant? This statement came from a report of a group of scientists and science educators concerning the secondary science program in the Illinois Public Schools. The author agrees that education has been a legitimate target on both counts—first, that teachers *do* have too little knowledge of the subject matter in which they are instructing; and second, that the teaching has been at a low conceptual level, especially for the academically talented youngster.

New Trends in Education

There are many legitimate reasons why this is true. Most of these reasons indict the American public more than the educators, but denying problems which are self-evident to the intelligent layman will not win his respect or confidence. There are, however, important trends occurring in our educational system. Probably it is not correct to say that research started the trends. As often as not, the trend seemed to stimulate the research, but the research does illustrate these changes.

These new trends involve major changes or modifications in three areas: the curriculum presented to the student, the methods or procedures by which this curriculum is presented, and administrative arrangements and organization. All of these changes are occurring at the same time and they sometimes seem to become mixed together in practice, as well as in research.

Curriculum Changes

Many dramatic changes in curriculum have resulted from the increased involvement of scholars from various content areas who have become more interested in education and the educational process. For

[1] Arthur Bestor, *Educational Wastelands*. Urbana, Illinois: University of Illinois Press, 1953.

[2] L. F. Audrieth, R. W. Burnett and H. J. Fuller. "Secondary School Science Programs: Appraisals and Recommendations in Improving Science Programs." *Illinois Schools*. Urbana, Illinois: University of Illinois Press, 1958.

a number of years many textbooks have placed an emphasis on functional knowledge. Thus, in the elementary science texts the emphasis was on how a car runs, how a refrigerator works, what happens when you turn the light switch on, and other very practical and functional problems which stemmed from the immediate interests of the child.

The arithmetic curriculum was built on story problems in which the child's introduction to the world of mathematics was the solution of everyday practical problems in the grocery store or in business. The general reaction of the scholars, of whatever field of knowledge, was one of unadulterated horror. While this functional approach has much to recommend its use, especially with slow learners, it becomes hard to support as an adequate approach to educating the gifted child.

The approach of committees of scholars and educators such as the Physical Science Study Project has been typified by Cronbach as follows:

> The scholars believe that a curriculum built around applications gives a false picture of a field of knowledge, or no picture at all. It omits both the systematic content of a discipline and its procedures. Moreover, they deny that it is possible to arm the pupil with the technological knowledge that will serve the needs of his lifetime. The typical physical theory, they say, goes out of date in about 20 years. In many an industry 90 percent of the products and hence of the technology were unknown 10 years ago. Knowledge of specific chemical compounds or processes, therefore, is of transient value; only a highly generalized understanding of molecular structure and conditions governing reactions remains pertinent.[3]

Thus the emphasis has been toward the goal of teaching the basic structure of the subject matter.

Bruner (1960) in his book, *The Process of Education*, reported on the Woods Hole Conference, during which some conclusions on the importance of structure were reached. Bruner raises other important issues too. One issue concerns the concept of "readiness." He points out that "readiness to learn" is a function not only of the individual capabilities of a child but of the way in which the material is presented. That is, if we have evidence that the child does not learn to read until the age of six, this does not necessarily mean that he could not learn at a younger age if the material were presented in a different manner. This general concept has been applied most spectacularly to mathematical ideas in which some of the more advanced mathematical concepts have been presented at the early primary grades. The ingenuity of the curriculum devisors is brought

[3] L. J. Cronbach. "Psychological Issues Pertinent to Recent American Curriculum Reforms." Address delivered at International Congress of Applied Psychology, 1961.

into play to allow the child to gain experience with important concepts in set theory or probability even though he may not be able to verbalize the concepts.

Methods

A major issue raised by many of these curriculum specialists has concentrated on student motivation and the process of learning. Their claim, put simply, is that a student learns to be a scientist by acting like a scientist, not by reading the results of the scientist's work. He learns mathematics best by acting like a mathematician and therefore should search for his answers and for his general principles much as does the mathematician himself. Thus, we note the current emphasis on the discovery method. This requires a very carefully designed curriculum and an extremely knowledgeable instructor, and, some believe, a pliable and alert group of youngsters. Given these, the demonstrations can be quite remarkable indeed. Whether they are efficient is another matter. The efficiency of the discovery method in education is likely to be a source of continuing controversy for the next decade. There is little or no debate, however, concerning the importance of the youngster's being able to think for himself.

An interesting research project, now in progress, is being conducted at the University of Illinois by Suchman. His major interest is in teaching youngsters what he calls *methods of inquiry* (1961). In the process of his investigations he has found that, for example, in a typical elementary classroom, a teacher will ask from 8 to 10 times as many questions as the children. This would seem to be a very strange state of affairs when one considers the excited curiosity and interest typical of the young child. Suchman suggests that the pupils have been trained out of inquiry and wait passively to receive the knowledge presented to them. He uses films as a stimulus. In these films the children are given an experience which, from their standpoint, is unexplainable.

For example, he has a film of the science experiment using a bimetallic strip. If heated on one side, it curves down; and if heated on the other side, it curves up Suchman then asks the youngster to try to discover *why* this happens by asking him questions to which he will answer *Yes* or *No,* similar to the Twenty Questions game. One of the most revealing aspects of the research has been that the task itself (solving a puzzle) has been a startlingly new and confusing one for the children. This is an example of a typical interchange between an adult and a bright child.

Examiner: What made it go up? I'm here to answer questions.
Mark: Yes, I know. I can't think of any to ask.

Examiner: I see. Think. Try.

Mark: (pause) Well, I can't think of any questions.

Examiner: What is it you know? What would you want to know?

Mark: Why it bended upwards.

Examiner: What could you do to find out what things were necessary?

Mark: Try it. Ask someone who knows.

Examiner: Yes, you could ask someone who knew but that would just be getting somebody else to tell you, wouldn't it? I mean finding out for yourself.

Mark: Just try different things.[4]

One of the most brutal criticisms of an educational system would be to demonstrate that a bright youngster should be so totally at a loss when faced with a situation in which he is thrown on his own cognitive devices and resources to solve a problem. Another type of interchange is also informative in this regard. Henry is a youngster who *has* figured out a way to handle these kinds of situations.

Henry: Did it straighten in the water because the atoms of the heat molecules and the knife changed from a minus to a plus?

Examiner: How could you possibly find that out?

Henry: Well, it would be kind of hard unless you did it with a telescope or a microscope.

Examiner: I can't answer that question then.

Henry: It seems that this is just another fact of science, even though it's amazing, but sometimes it takes weeks to figure out answers. I'll do the best I can to find out an answer.[5]

Here is a fine example of an intellectual bluff of a bright youngster. Although the words may have a ring of authenticity and importance, it becomes clear that Henry really does not know what he is talking about. It is just as clear, however, that Henry has gotten away with this technique in the past. Why? Teachers will comb through this type of verbal chaff in order to find the kernel of wheat. The teacher then will take the idea, reform it, reexplain it in the proper way, and perhaps come to the conclusion that Henry really understood the essential concept but just could not express it very clearly. Naturally, when Henry, himself, must solve the problem, this kind of approach is to no avail.

Suchman attempts to train students in three stages of inquiry: *episode analysis,* in which the youngster is supposed to verify what the essential facts are in the film; *determination of relevance,* in which he is to identify the necessary conditions surrounding the phenomenon; and *induction of relational constructs,* which means that the individual is able to predict

[4] Richard Suchman. "Inquiry Training: Building Skills for Autonomous Discovery." *Merrill Palmer Quarterly* 7: 147; 1961.

[5] *Ibid.*

other results or to change the situation so that the principle that is being demonstrated here can be used in other situations. While the final results of the experiment are not in, the preliminary results are encouraging and the procedures and the process itself have already raised many important issues.

While Suchman deals mainly with methods of modifying the individual learner, there has been a quickening interest in the teacher-pupil interaction as well. One occupational hazard of the educator is that his attempt to state something important often turns out to be a stupifying cliché. For example, the quality of the emotional interchange between the teacher and student is important to final student production in the classroom! Nor is it much more enlightening to know that many factors influence this emotional interaction. As Dewey and Bentley (1949) put it, no one would be able successfully to speak of the hunter and the hunted as isolated with respect to hunting. Yet it is just as absurd to set up *hunting* as an event in isolation from the spatio-temporal connection of all of the components. What is then necessary is to become more specific, and to produce facts regarding the precise nature of the interaction and the relevant correlates. The key to the situation lies in appropriate measuring instruments just as this is the key to successful operation and development in any science.

One of the many difficult problems in communication between the research person and the teacher-educator lies in the teacher's having an all-consuming interest in the product of the research. When the research person tries to describe in some detail *how* he went about finding out what he has discovered, the consumer or the educator often waits very impatiently, in effect, saying, "Never mind all that detail, just tell me what you found out." One of the points on which it is very hard to convince teachers, is that *what* you found out was intimately related to *how* you went about finding it out.

All of this leads to the point that what has been needed was the development of more useful measuring instruments to analyze the classroom situation itself. The studies described in the following pages attempt to do this. One interesting study was conducted by Spaulding (1962), who attempted to show precisely what kinds of student behavior were associated with differing kinds of teacher behavior. As he puts it, "During the course of a year in each classroom a small society emerges exhibiting its own social rules, its sanctions, its ways of work and play." What Spaulding attempted to do was to identify the kinds of rules and sanctions that were operational in the 21 elementary classrooms that he studied in Palo Alto, California.

Spaulding collected data regarding the pupil's self-concept, ability

to do creative thinking and academic achievement at mid-year and then again in May of the same year. In between these tests, Spaulding collected what he refers to as transactional data. This data was obtained by means of a transistor microphone transmitter which the teacher wore. The teacher's statements were placed on tape and analyzed through time sampling techniques. Spaulding attempted to analyze the classroom interaction data in terms of the amount of teacher approval or disapproval shown, the type of content used, the amount of publicity of communication, and sequential reinforcement. These factors were then related to the changes in achievement or ability in creative thinking that occurred in the children over the half-year period.

Sex differences were marked. The growth of self-concept of girls was negatively related to public disapproval, while it was positively related to private disapproval. In other words, to build up the self-concept of girls, disapproval should be expressed in private rather than in public. Teachers' disapproval did not seem to have an impact on boys' self-concepts, however.

Now we are also, of course, interested in what kinds of teacher behavior seem to stimulate "creative" thinking in students. As before, there were differences between boys and girls, with boys showing a higher degree of creative thinking in those classes in which the teacher took a more negative tone. There was *one* variable which seemed to be significantly related to the development of creative ability in both boys and girls. This was the variable of non-teacher centered instruction.

Spaulding identified two different teaching strategies, a teacher-centered world in which the main task was to identify and repeat back the teacher's own perceptions of the world. The alternative strategy was to present a world in which all, teachers and students, share in discovering the elusive truth. The results of the experiment supported the notion that non-teacher centered instruction encourages creative work and ability although it did not, surprisingly enough, have a positive influence on the development of self-concept.

One of the knotty problems that Spaulding leaves with us is that the kinds of teacher characteristics which seem to enhance the self-concept of the youngster seem to diminish the gains in academic achievement and creative thinking. In other words, improvement in achievement and creative abilities seems to be related to pressure and to negative tone on the part of the teacher. Spaulding raises a question as to whether teachers may have to balance the gains made in the areas with possible losses to the individual's self-esteem. Again we are appallingly ignorant of the long range development of self-esteem as opposed to short range changes, as measured here.

Please note that, in the Spaulding study, he was measuring "creative" thinking and ability. One of the numerous clichés of education is that we are interested in developing creativity or productive thinking to the highest level possible. We have not been able to become much more specific than that for the lack of reasonably adequate measuring instruments. If we cannot measure something, it is very difficult to tell whether or not we are doing a good job in producing it.

With all of the present interest in education, it is rather surprising that some new and seemingly productive instruments came from the work of an academic psychologist by the name of Guilford (1955). His attempt to define and elaborate on the total structure of intellectual processes in human beings included some areas of operation that were not related to the ordinary intelligence tests with which we are familiar. While we have continually reminded ourselves that intelligence tests do not really measure all that is important about intellect, we had to wait for someone to come along with some other measuring instruments before we could really discuss this point with any degree of specificity.

The area Guilford identified that seems to be of most current interest to educators was the intellectual operation of *divergent thinking*, or the ability to produce large numbers of ideas which manifest intellectual flexibility, fluency and foresight.

Standard IQ tests have stressed items such as "Hook is to eye as bolt is to ————," a type of task which Guilford calls *convergent thinking* —the stressing of one right answer. Tests of divergent thinking would ask, "How many different meanings can you give for *bolt?*"

Above a certain level of Binet IQ (about 120), or the top 10 to 15 percent of the school population, little relationship is found between IQ test scores and scores on these tests of divergent thinking. Furthermore, some interesting differences have been obtained regarding two groups of youngsters, those scoring high in IQ but not on creativity and those who score high on creativity, but not in IQ. These differences extend to family attitudes and values, self-concepts, attitudes toward their education and their projected future.

Much credit should go to the pioneer investigation of Getzels and Jackson (1962), who attempted to distinguish the characteristics of these groups of children. For reasons of simplicity and understanding, these groups are referred to here as the *high IQ* versus the *high creative* group. Once again the differences between these two groups of youngsters depended a great deal upon the measuring instruments and Getzels and Jackson used a large number of adaptations from the original Guilford studies. One surprise was that the *high creative* group was achieving as well as the *high IQ* group even though the former children were an average

of 23 IQ points below the high IQ children. Torrance (1962) who has extended and elaborated on the Getzels and Jackson's studies has found that this is generally true in most schools, but not in all. It appears to depend upon the type atmosphere and program of the school as to whether the *high creative* youngsters will be achieving well or not.

In terms of the family factors, there were numerous differences between the two groups but the essential differentiation seemed to be the ability or the predisposition to take risks. In the high creative families the youngster appeared to be encouraged to take more risks from a social standpoint and to put less pressure on the youngster to follow a particular predetermined parental pattern. Two stories based on the same picture from the Getzels and Jackson study illustrate this risk taking strategy.

The high IQ subject: Mr. Smith is on his way home from a successful business trip. He is very happy and he is thinking about his wonderful family and how glad he will be to see them again. He can picture it, about an hour from now, his plane landing at the airport and Mrs. Smith and their three children all there welcoming him home again.

The high creative subject: This man is flying back from Reno where he has just won a divorce from his wife. He couldn't stand to live with her anymore, he told the judge, because she wore so much cold cream on her face at night that her head would skid across the pillow and hit him in the head. He is now contemplating a new skid-proof face cream.[6]

Note the cautious approach of the high IQ storyteller. He gives a standard story on a socially respectable theme. No one can say that the story is wrong or inappropriate. In contrast, the high creative child breaks free from the stimulus, gives an unusual story that deals with a socially unacceptable theme such as divorce. In other words, he is willing to run the risk of teacher or peer disapproval in order to give free rein to his own imagination.

Torrance and his associates have suggested that this is a real risk indeed as they conclude:

In most classrooms, the child who expresses an unusual idea or offers an unusual production takes a calculated risk! In such a setting, it takes a great deal of courage for a child to press for presentation of his unusual ideas. Such ideas are frequently hooted at and depreciated as "silly" or "screwy."[7]

Our own research efforts studying productive thinking at the Institute for Research on Exceptional Children have centered on analysis of the cognitive behavior of the classroom teacher and students. We have been impressed by the contributions of Guilford and have

[6] J. W. Getzels and P. W. Jackson. *Creativity and Intelligence.* New York: John Wiley & Sons, Inc., 1962.

[7] E. Paul Torrance, *Guiding Creative Talent.* © 1962 by permission of Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

accordingly framed our classification and analysis of the teacher's classroom behavior and that of the students in terms of the Guilford model. Thus, the analysis is in terms of *cognition—memory—convergent—divergent—evaluative* intellectual operations. Each student and teacher response is classified in these general areas (Gallagher and Aschner, 1963).

Analysis of Cognitive Behavior

Perhaps one reason why we have placed so much stress on the importance of measuring instruments is that we have spent much of our energy in devising and refining our own tests, rating scales, etc. We have tape recorded blocks of five consecutive classroom sessions in twelve classes of intellectually superior children in four content areas at the junior high school level.

These sessions are transcribed and each spoken thought unit of teacher and pupil is classified in order to identify patterns of cognitive behavior in the classroom. One goal of our work is to try to discover which kinds of teacher behavior bring forth which types of productive thinking. Perhaps we can add to this, in which kinds of children.

We have found, as Spaulding did, some sex differences in the classroom interaction behavior. In a total of eight classrooms so far analyzed we have found that there is a definite tendency for boys to speak more than girls in the classroom and to be more *fluent* in written tests, despite similar IQ scores.

It would seem that expressive behavior in the classroom is a measure, to some degree, of personal aggressiveness and that boys are expected to be more personally aggressive than girls and therefore to talk more. Whether they talk in different styles or intellectual operations or not is an interesting question that we hope to analyze in the near future.

Another observation related to *divergent thinking,* which appears to be one necessary component to creative thinking, is that unless the teacher takes steps to ask specifically for this kind of thinking operation it very rarely occurs in the classroom.

Some examples of the various teacher approaches can be imagined if the teacher is to discuss the relationships between the Spanish Armada and the colonization of America.

One teacher approach could be styled *cognitive-memory: "Teacher:* Can someone tell us what he has read about the Spanish Armada?" This requires no thinking ability but merely the ability to remember.

An alternative approach might stress *convergent thinking: "Teacher:* Give an explanation for why the Spaniards lost?" While this could be

cognitive-memory also, it may test the ability of the student to put facts in a logical and sequential order.

Or the teacher could tap *divergent thinking:* "*Teacher:* Suppose the Spaniards had won, what sorts of things might be different about our country today?" Here we have multiple possibilities and the student is encouraged to range over many dimensions without concern for the one right answer.

Finally there is *evaluative thinking:* "*Teacher:* Do you suppose we would have been better off if the Spaniards had won?" This type of question demands the application of some value dimension to the problem and the judgmental relationship regarding the item in question and that value dimension.

These four different types of questions are relatively easy to identify by teachers, as our workshops have shown. Teachers, given the subject matter, can compose questions tapping each of the intellectual operations. In the course of classroom discussion, it is likely desirable that all types of intellectual operations need to be brought into play. What the teacher appears to need is an understanding of a system such as this by which he can become aware of his own behavior, affective and cognitive, and the effect it has on the students.

Administrative Organization

Recently the author attended a workshop with some administrators in a large metropolitan school system. They were discussing their own programs for gifted children. There was an impressive variety of approaches. Some of the administrative arrangements used a special consultant with knowledge of how to stimulate thought processes of gifted children. A second alternative approach was to have a consultant based on subject matter areas; a science consultant or a social studies consultant, etc. Other administrative arrangements were the ungraded primary, overlapping grouping, the use of special interest groups, bringing in outside specialists for part of the day, and acceleration in the school program. After listening to some of the group sessions in which various procedures were described for handling bright children at the elementary and junior high school levels, the author composed a summary statement. One part of that summary was that the self-contained elementary classroom seemed to be disappearing.

One can become involved in the details of administrative provisions and overlook the fact that they really are only trying to accomplish a few basic goals. A primary goal is to make available to the children a higher level of subject matter conceptualization. Second, to have a workable

group of children, from an intellectual interest and achievement standpoint, to allow for maximum absorption of these ideas. Third, to present material in a way appropriate to this particular group. All of these administrative arrangements and organizations are attempts to answer the two major criticisms, the poor knowledge background of the teacher and the low conceptual level of the curriculum.

A further consideration is the ever increasing role of automated teaching devices. Already in experimental use, among others, are closed circuit TV, learning machines which operate as a type of tutor to the individual student, computer regulated devices which present any material from logic to history, and an airborne TV system with a plane reflecting TV signals over a ten state area in the midwest classrooms. As many other persons have stated, these automatic devices will no more replace the teacher than did the advanced automation of the kitchen eliminate the housewife. These aids will, however, allow the teacher to do more of the things that he has never had the time for and will release him from more routine tasks.

The advantages of the machines are many. They never get mad or impatient or disgruntled. They give instant feedback so that the child realizes immediately whether he is right or wrong and does not have to wait until the next morning for the teacher to return the papers. Indirectly, learning machines have forced upon us the necessity for systematizing our own instruction. This had to be done to allow the content to be placed on the machine, but the increased efforts in organizing materials can pay off in greater insight by the teacher or educator in the subject matter in question.

While the machines answer questions effectively, they do not as yet choose the questions to ask. This can be one of the most important functions of the teacher in the future. A *Saturday Review* article dealt with "Hamlet's Low-Speed Computer." It was pointed out that Hamlet's father's ghost was the forerunner of today's computers. Hamlet asked the "computer" what had happened to the late king of Denemark and what should he do about it.

> From the ghost he got back a very detailed reply. . . . Responding to these advices, Hamlet created a political, social, moral and administrative mess that was simply hair-raising. The trouble was that he had gotten the right answer—the answer he deserved—to a question that was totally wrong. He had asked about his father when, as any psychologist will tell you, he should have asked about himself and his relations with his mother.[8]

[8] *Saturday Review*. "Hamlet's Low-Speed Computer." April 7, 1962, p. 46. Adapted from *Management and the Computer of the Future*, edited by Martin Greenberger © by Massachusetts Institute of Technology (John Wiley and Sons—The M.I.T. Press).

Today's computers or learning machines will give back faithful information but it takes extraordinary wisdom to know what to ask.

The science fiction future of computers in the classroom has been sketched out by Silberman and Coulson (1962). They suggest that a future computer can generate practice or drill exercises for the student. A computer would be able to place items in a basic or a remedial series. If several items in the remedial series are similar, the computer could be able to select such items at random.

In future auto-instructional systems, a student may be given much more freedom in the kinds of information he can insert and receive from the teaching machine. He may be allowed to answer questions posed by the machine, or even ask questions of his own, using conventional English. These and many, as yet, undreamed of applications lie over the horizon.

It is probably unwise to consider the potential effects of the various research endeavors discussed here on teacher education without a generous supply of pain killer on hand. Research means change. Research is the mortal enemy of the status quo. The responsibilities on teacher preparation institutions and on the in-service education programs are heavy. It would be foolish for university faculty members to believe that we could remain untouched by this upheaval of traditional school practices. What we need is a program of teacher education that is responsive to these new ideas and is flexible enough to adapt to them.

The research discussed has included examples of research on the learner and on methods to help him become more independent in his thinking, new notions regarding the character of productive thinking and productive thinkers, investigations of research on the interaction of teacher and pupil (both affective and cognitive), and on basic modifications of the curriculum.

We are clearly on the threshold of much new knowledge of teaching and education. Living and working in this era will not be easy, but it will not be dull either. It is up to us to meet the challenge of this new information with ingenuity and creativity so that we are masters of the new ideas and developments rather than slaves to them.

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Teacher and Classroom Influences on Individual Learning

Ned A. Flanders

SUPPOSE a student is working on a problem and reaches a point at which he must make a decision. If he considers the alternatives and then makes his own decisions, his actions will appear to be relatively independent. If he is unable to make decisions without some help, we would consider his action to be relatively dependent. In every classroom situation there is a certain amount of dependence that may be directed toward the teacher, toward other members of a group, or toward authority symbols of some sort. Students differ in their tendency to respond with independent or dependent behavior, in a given situation, and this tendency has been studied as a personality trait.

By the time children reach school age, the personality trait of dependence-independence appears to be well established. Stendler (17) suggests that it is only when a child is sufficiently dependent to be pleased at parent approbation that he can make rapid strides toward independence. The child with a good dependence-independence ratio will develop into a normally independent adult. Stendler describes two critical periods when overdependence may develop: (a) when the child, at the end of his first year, tests his mother to see if he can depend upon her; and (b) when the parents and society begin to increase their demands upon the child rapidly during the ages of two or three. Sears *et al.* (15) found a substantial relationship between the frustration developed in childhood training, such as feeding practices, and the incidence of dependence observed by teachers. Support for these views can be found in the work of Frenkel-Brunswik (14) and her colleagues, who found measures of this personality trait to differ significantly in the interviews of prejudiced and unprejudiced

adults. She suggests that patterns of submission to parental authority, and the accompanying childhood frustrations, may be closely related to submission to authority in general. She states that this, in turn, ". . . would have the broadest implications for social and personal behavior both toward those with power and those without it."

Dependence and Independence

From what we already know about the teacher's influence on social processes and structures, it is clear that the teacher has the power to create, or can help to create, conditions which elicit primarily dependent reactions from all but the most independent students. If necessary, he can also force even the most independent students into dependent patterns of compliant behavior. On the other hand, by exercising some care, the teacher can create conditions which will encourage all students except the most dependent, to initiate more independent action and can create, if necessary, special circumstances in which even the most dependent can respond with more independent behavior.

Why be concerned with dependence and independence? What effect will control of dependence have on learning? Not much research on classroom learning has been concerned with the concepts of dependence or independence, so the following comments must be speculative.

Given the well documented fact that patterns of dependent or independent behavior are established during preschool years, we may assume that all teachers face a range of individual differences with regard to this trait. It is most reasonable to suppose that a child will learn most, in a given classroom situation, when he can respond in a fashion that is consistent with his previous experience. For example, Smith (16) found in remedial reading courses for college students, that those students whose personality measures indicated that they might function best in a highly organized classroom with activities clearly structured did, in fact, learn more under these conditions compared with learning in classrooms not so highly organized.

The reverse conditions were also created and students whose personality measures indicated the opposite trends learned more in less organized and less structured classrooms. It may be that when achievement alone is considered, matching the social structure to the personality needs of the student will maximize learning.

Yet following this policy alone would probably reinforce existing patterns of dependence or independence and any teacher must question the desirability of such procedures. There may be times when independent-prone students should learn to adjust to situations that require more

dependent responses and when dependent prone students should learn to respond with more independent behavior.

Besides the problem of matching the situational requirements to the personality needs of the student, it is obvious that the requirements of certain educational objectives must also be matched to the learning activities. It seems unlikely that higher, more creative mental processes can take place when the primary mode of response is dependent. For example, it seems unlikely that students can plan the steps necessary to reach a goal, gain the insight required for creative problem solving, or generalize from one situation or another, under conditions of high dependency. Is it not equally true that for certain objectives that involve drill, following directions, or close coordination of individual effort, dependence on the teacher, or surrogate authority figure, will result in greater efficiency?

The balance between dependence and independence should be a function of the student's personality tendency, the requirements of the goal and the requirements of coordination in getting work done. It is hardly possible to imagine a desirable classroom situation in which either maximum dependence or independence is maintained consistently.

Research Using Interaction Analysis

The effect of teacher influence on dependence is greater in some situations than it is in others. To investigate these relationships we found it was necessary to devise an objective method of quantifying the qualitative aspects of the teacher's spontaneous behavior. We call our system "interaction analysis." Since this research procedure will be basic to any discussion of controlling dependence, we will now turn to a description of the technique.

The system of observation used at the University of Minnesota made use of a classroom observer who classified verbal statements into one of ten categories once every three seconds. Because teacher influence was of central interest, seven categories were used for teacher statements, two for any student statements, and one category was used to indicate silence or confusion. The ten categories were: (a) clarify feeling constructively, (b) praise or encourage, (c) clarify, develop or make use of ideas suggested by students, (d) ask questions, (e) lecture, (f) give directions, (g) criticize, (h) student talk in response to the teacher, (i) student talk initiated by the student, and (j) silence or confusion. An observer's record, using this system, is a series of numbers representing the different kinds of verbal events over a particular period of homogeneous classroom activity. The original sequence of verbal events is preserved in the

observer's notes and a pair of events (sequence pair) is tabulated into a matrix, giving information about which event preceded—or followed—another. The system is called interaction analysis and is described in detail in an observer's manual (Flanders, 1960a).

The major innovation of this system is the matrix. All the possible systematic inferences from the matrix have not yet been utilized. This device, however, does provide a teacher with more information, systematically arranged, about his spontaneous behavior than heretofore has been possible. For example, statements that the teacher makes as an immediate response to students are isolated and can be compared with teacher statements that trigger student participation. Even the column totals which indicate the proportion of time spent in each of the ten categories constitute a surprise for some teachers.

The first two years at the University of Minnesota were spent refining the categories of observation and developing a paper-and-pencil attitude test on which students could indicate their attitudes toward the teacher and the class activities. A study of elementary and junior high classes in Minnesota and elementary classrooms in New Zealand (8) indicated that there were consistent differences in the pattern of teacher statements when classrooms in which the students had more constructive attitudes were compared with classrooms in which the attitudes were less constructive.

A contract with the Cooperative Research Program, U.S. Office of Education, permitted measures of achievement to be investigated in more carefully controlled field studies. In one project all the materials necessary for a two week unit in seventh grade social studies and eighth grade mathematics were supplied to teachers carefully selected in order to represent the extremes of teacher influence present in a larger population. The patterns of teacher verbal behavior were compared with gain in achievement as measured by pre- and post-tests. Student attitude inventory scores were also available. It was found (10) that the attitudes of students toward the teacher and class were significantly more constructive in classrooms in which achievement was higher. The verbal patterns of teachers in the superior classrooms were significantly different from those in the below average classrooms. These differences tended to support the hypotheses about teacher influence that were proposed in a chapter of the 59th Yearbook of the National Society for the Study of Education (11).

Further experiments were conducted in which teacher influence was controlled by training a teacher to role-play particular patterns of teacher influence. Filson (7) showed that when the learning goals are unclear, as in a new task, lecturing and giving directions increase the dependence of students on the teacher. Amidon (1) showed that the achievement of dependent prone students in geometry is lower when teacher control

is maintained by an above average use of lecturing, giving directions, and criticizing. On the other hand, when the teacher's control was maintained by an above average use of questions followed by the development of the students' ideas, achievement was significantly higher. Anderson (6) showed that dependent-prone students see teacher behavior differently than do the less dependent-prone, and they both have different expectations concerning the teacher's role.

The last project at Minnesota was an in-service training program in which teachers were trained to use interaction analysis in order to obtain information about their own spontaneous behavior. Participation in a ten-week course produced significant changes in the spontaneous verbal patterns of teachers. The use of interaction analysis as a method of feedback (12) for teachers showed considerable promise.

Part of the in-service training project included the design and production of five sound filmstrips for use in the in-service training of teachers (13). The set was produced by the Audio-Visual Education Service, University of Minnesota; the filmstrips vary in length from 15 to 45 minutes, are in color and include a tape recording for sound reproduction. Number one deals with the attitudes of teachers toward in-service training. Number two introduces the basic concepts used in interaction analysis. Number three defines and gives examples of the ten categories. Number four demonstrates how to tabulate and interpret a matrix. Number five shows an application of interaction analysis to a teacher-pupil planning session in ninth grade social studies. Companion instructional materials for the use of filmstrip viewers are not yet completed.

The filmstrips were used successfully as part of observation training in a Minnesota school system during 1960-61. They also have been used for workshops at Temple University and the Teachers' Laboratory, National Training Laboratories, Bethel, Maine, during the summer of 1961.

The extended research program at Minnesota has involved arbitrary value judgments which guided research activities including what was studied and how it was studied. One value was that the educational research should be practical in an engineering sense and make use of techniques that can be carried out in classrooms. Another set of values concerned superior and inferior teaching. It was decided that in a superior classroom: (a) student achievement of the content objectives should be higher than average, in spite of the limitations of our measuring instruments; (b) student attitudes should be more constructive, giving above average scores on an inventory that includes scales of teacher attractiveness, interest in doing schoolwork, fairness of rewards and punishments, less dependence on teacher direction, and less disabling per-

sonal anxiety; and (c) the *students'* perceptions of the educational objectives and alternative classroom activities should be taken into consideration as part of the social situation, especially in planning work.

This value system operated to give us hunches about what is important in the teaching-learning process, what instruments to develop, and what comparisons might give us most information. These values were somewhat like an insurance policy designed to protect our research interests, but like all insurance, there was no guarantee of positive or negative research results. Some of our hypotheses about teacher influence were rejected, others supported, even though all were "insured."

Controlling Dependence

Our research shows that the teacher's behavior is a significant factor in the control of classroom dependence. After observing over 100 teachers at all grade levels and tabulating over 1,250,000 tallies, our research team has reached some general conclusions.

First, dependence is higher in most of our public school classrooms than is necessary to control and coordinate the learning activities. If dependence were slightly lower, it is our hunch that more creative learning could take place. The evidence for this statement can be summarized as follows:

Common practice in today's classrooms with regard to teacher influence can be expressed by the "rule of two-thirds." Two-thirds of the time spent in a classroom, someone is talking. Two-thirds of the time someone is talking, it is the teacher—for the teacher talks more than all the students combined. Two-thirds of the time that the teacher is talking, he is lecturing, giving directions, or criticizing the behavior of students. One-third of the time he is asking questions, reacting to student ideas, or giving praise.

In a classroom in which there is greater freedom for intellectual curiosity, for expressing ideas, more positive attitudes, and more achievement of content, the rule of two-thirds becomes, in effect, the "rule of one-half."

In these same superior classrooms, there is an element of flexibility in the influence patterns of the teachers not found in below average classrooms. Teacher behavior is simply less predictable. On one occasion the teacher may dominate and supervise work very closely, on another occasion the teacher may provide a very low level of participation and most of this is indirect.

It is our guess that there is less dependence in these superior classrooms. There is more self-direction and independence of teacher direc-

tion. Students can concentrate more energy on the learning task and less energy on finding out how to please the teacher. Students are oriented more to the discipline of the problem at hand and less to the authority of the teacher.

Second, when students have more independence, they have different attitudes toward their teacher and their peer group. Our research did not collect information about peer group standards of behavior and participation in the superior and below average classrooms. On a subjective basis, the following theory fits what we saw in the classrooms we observed.

In the below average classrooms the peer group forces seemed more potent because the students expressed what might be called "aggressive counter-dependence." There was a shared satisfaction in resisting teacher influence more often. The standards the group set for itself seemed to be contrary to those desired by the teacher more often. In this sense, peer group forces were more easily noticed, they were points of friction.

In the superior classrooms, on the other hand, peer group forces were less apparent. It is our hunch, however, that they were just as potent if not more potent compared with below average classrooms. One can assume that as students become more independent of teacher direction, their own status becomes more clearly differentiated from other students. The more capable students had more freedom to exert influence within their own groups. H. H. Anderson and his colleagues (2,3,4,5) have already shown that student leaders tend to imitate patterns of teacher influence in their peer contacts. His research would suggest that the flexible, more indirect pattern of the superior classroom teacher would more likely be followed in student-to-student contacts.

It seemed to us that the big difference was that the forces within the peer group were more consistent with the purposes of the teacher in the superior classrooms. Teacher influence and group standards were more compatible and mutually supportive.

Third, one way to describe the teaching process is to say that a teacher accepts the initial dependence of students and then designs a series of experiences such that the student becomes more responsive to (or dependent on) the requirements of the learning task and less responsive to the authority of the teacher. It is in this sense that successful content achievement or problem solving is, itself, therapeutic. The thrill of achievement contributes to the intellectual and emotional maturation of the student.

The delicate timing involved in this process requires a teacher to decide when to be more direct and restrict the freedom of action of students and when to be more indirect and expand the freedom of action of students. To make these decisions accurately as often as is possible the

teacher needs as much information as he can collect. Teachers who ask more questions and clarify and develop students' perceptions will obtain more information than will teachers whose natural style is more directive. Our hunch is that the former make more decisions correctly partly because they have more practice. They are also in a better position to develop principles that guide their behavior. They have a richer teaching experience.

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Social Class: Educational Attitudes and Participation

Richard A. Cloward and
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WHAT we do about a persisting social problem, such as poor academic achievement, depends in large part on our assumptions about the forces that produce it. Every approach to this problem is based on certain assumptions, explicit or implicit, about why the problem it is seeking to solve exists in the first place. We shall set forth here some ideas which we hope are helpful in dealing with the problem of poor academic performance among certain categories of children.[1]

The problem we will examine is that of the generally direct correlation between socioeconomic position and academic achievement. There are, of course, important qualifications which should be noted when this correlation is discussed. Although the correlation holds generally when the various strata of our society as a whole are compared, it may not necessarily hold for certain important subgroupings; some ethnic groups may tend to perform well despite their low socioeconomic position; some groups may tend to perform poorly despite very high socioeconomic position. The point is not that the correlation is unvarying whatever the specialized status categories which one compares, but rather that it tends

[1] The data upon which this paper is based were drawn from surveys conducted by the New York School of Social Work, Columbia University, in conjunction with Mobilization for Youth, Inc.

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to hold for very large aggregates of the population despite these internal variations.

If we ask whether this general correlation can partly be explained by class differences in emphasis on education, the answer is probably yes. However, the problem of underachievement in low income groups cannot be explained simply by differences in emphasis on education, although the representatives of educational institutions may find it convenient to explain it in this way. It must also be recognized that other forces combine to produce lower levels of achievement in low income groups, several of which might be noted.

Influences on Achievement

One force making for lower levels of academic achievement among poor youth is the fact that they receive less instructional time. A number of factors combine to diminish instructional time, not the least of which is teacher turnover. For a variety of reasons, many teachers are reluctant to teach in the slum school. A study of the career patterns of Chicago public school teachers documents the fact that teachers normally begin their careers in lower class neighborhoods, where there are more vacancies, and transfer out as soon as they can.[2] In addition to high turnover, this also means that teachers in slum schools are generally less experienced. The effect of this situation is especially unfortunate when one considers the characteristic instability of many slum communities, not to mention the economic uncertainties of slum youngsters' lives and the frequent changes in the composition of their family. It is important that the school, as represented by its teachers, be a constant, stable, omnipresent force in the community.

Because of the greater turnover of teachers in slum schools, the relative inexperience of these teachers, and the geographic mobility of low income families, slum youth receive less actual instructional time than do school children in middle class neighborhoods. Indeed, one study of a deprived-area school indicated that as much as 80 percent of the school day was devoted to discipline or organizational detail; even with the best teachers this figure never fell below 50 percent.[3]

A second force making for underachievement stems from the strong tendency in our society to motivate academic achievement by holding out the promise of future occupational rewards. It should be pointed out,

[2] See: Howard Becker. "The Career of the Chicago Public School Teacher." *American Sociological Review*, Vol. 17, No. 7, July 1952, p. 470-76.

[3] Martin P. Deutsch. *Minority Group and Class Status as Related to Social and Personality Factors in Scholastic Achievement*. New York: The Society for Applied Anthropology, Monograph Number 2, 1960. p. 23.

however, that educational attainment does not necessarily enable the lower-class person to overcome the disadvantages of his low social origins.

> Thus workers' sons with "some college" education are about as well off [financially] as a group as the sons of nonmanual fathers who have graduated from high school but not attended college. Similarly, high school graduation for the sons of workers results in their being only slightly better off than the sons of nonmanual workers who have not completed high school.[4]

To the extent that one's social origins, despite education, still constitute a restraining influence on upward movement, we may assume that other objective consequences of social position intervene, such as the ability of one's family to give one a start in a business or profession by supplying funds or influential contacts.

The influence of social class as a deterrent to social mobility, despite the possession of education, becomes all the more important when coupled with influences stemming from race and nationality. It hardly needs to be said that race usually acts as a major barrier to occupational mobility no matter what the educational achievement of the person involved. This situation is easing, to be sure, as progress in fair employment practices for all racial groups is slowly achieved. Nevertheless, it would be grossly inaccurate to say that a Negro youth in our society has the same chance as a white youth to become upwardly mobile given an equivalent level of education. It is not in the least uncommon to find Negro youth with college training forced to take employment in semiskilled and lower white collar positions. Among the professions, only teaching and social work have been readily available to them.

The point is, of course, that the major inducement to educational achievement in our society is the promise of future occupational rewards. If, however, it is known in advance that these rewards will be largely withheld from certain socioeconomic and racial groups, then it is unlikely that high levels of educational achievement can be sustained in such groups. Thus, academic performance may be devalued because the young in such groups see no relationship between such attainment and the realities of their future.

What we have been saying about the relationship between educational performance and occupational rewards assumes, of course, that discrepancies between the two tend to be perceived by low income and minority groups in our society. Generally speaking, the evidence available does suggest that perceptions of opportunity do accord with the reality. In this connection, Hyman summarizes data which show that there are distinct differentials by socioeconomic status in judgments regarding the accessi-

[4] S. M. Lipset and Reinhard Bendix, *Social Mobility in Industrial Society*, Berkeley and Los Angeles, California: University of California Press, 1959, p. 99.

bility of occupational rewards. Thus 63 percent of one sample of persons in professional and managerial positions felt that the "years ahead held good chances for advancement" while only 48 percent of a sample of factory workers gave this response. Furthermore, the factory workers were more likely to think that "getting along well with the boss" or being a "friend or relative of the boss" were important determinants of mobility; professional and executive personnel were more likely to stress "quality of work" and "energy and willingness." [5] Such findings suggest that low income persons do indeed perceive the impact of social origins upon their life changes. If these are the perceptions of occupational mobility held by parents in such groups, it is hardly likely that children in such families would hold contrary views on a wide scale. Under such circumstances, the perception of the role of education as a channel of mobility may fail to assume the importance which we might otherwise wish.

Third, it should be noted that the distinctive socialization of slum youth poses a barrier to academic achievement if the school is organized essentially in terms of middle class values, as is typically the case. In the development of curricula and the structuring of teacher roles, this culture conflict (as distinct from the timeworn emphasis on cultural deprivation) has never been fully recognized—a fact that puts the lower class child at a distinct disadvantage in competition with the middle class child.

The problem of differential socialization *vis-à-vis* educational achievement can best be seen by looking at certain ethnic and nationality values. By and large, immigrant groups historically have entered our social structure at the bottom, and thus it is in the lower class that these values have had the greatest impact. In many of the groups which have come to this country, distinctive systems of values were already well established and thus tended to persist here for a number of generations. Although the more superficial aspects of the American middle class value system may have been acquired rapidly, the more subtle and deeply embedded aspects of the Old World values were abandoned less readily. Indeed, there is good reason to think that many of these values continue to exert a profound influence upon the behavior of many persons in the second and third generations.

The point to be made about these persisting value orientations is that they do not always facilitate success in the school. Our system of education places a strong stress upon doing rather than being, upon a future orientation rather than an orientation toward the present or the

[5] Herbert H. Hyman. "The Value Systems of Different Classes: A Social-Psychological Contribution to the Analysis of Stratification." In: Reinhard Bendix and S. M. Lipset, editors, *Class Status and Power*. Glencoe, Illinois: The Free Press, 1953.

past, upon the notion that man is superordinate to nature rather than in harmony with it or subjugated by it, upon the notion that man is flexible and plastic and capable of change rather than that he is essentially, and perhaps immutably, evil. A child who has not acquired these particular value orientations in his home and community is not as likely to compete successfully with youngsters among whom these values are implicitly taken for granted.[6] Part of the problem of underachievement among some lower class persons may therefore be attributed to the existence of these alternative value orientations to which the young are differentially socialized.

The failure of the school to take these differing value patterns into account constitutes a striking form of inequality. In this connection, there are at least three respects in which equality can be understood. First, equality means that equivalent educational facilities shall be available whatever the socioeconomic position of the child. Second, equality means that individual differences in learning patterns shall be taken into account. Finally, equality means that the educational system shall not be organized in such ways as to favor children who are socialized in one rather than another part of the social structure.

Differentials in socialization, arising from socioeconomic position and ethnic origins, must, like individual differences in learning, also be adjusted to by the school system. If the educational enterprise is simply an extension of the middle class home, then it follows that only middle class children will tend to do well in school. If the school fails to practice equality in these several respects, then it can be understood as contributing to the very problem which it otherwise deplores.

Keeping such factors as these in mind we propose to examine the limited problem or differences in attitudes toward education by social class. In addition, we shall ask whether involvement in educational activities—such as visiting the school or participating in parent-teacher associations—appreciably influences these attitudes and, if so, in which socioeconomic strata.

Data and Indices

The data upon which this paper is based were gathered in the course of a survey of attitudes of adult residents living in the Lower East Side

[6] For one account of these value orientations, see: Florence Kluckhohn. "Variations in the Basic Values of Family Systems." In: Norman W. Bell and Ezra F. Vogel: *A Modern Introduction to the Family*. Glencoe, Illinois: The Free Press, 1960. p. 304-16. See also the book by Frank Riessman which points directly to the relationship between value differences and educational achievement: *The Culturally Deprived Child*. New York: Harper & Row, Publishers, Inc., 1962.

of Manhattan. For generations the Lower East Side has been labeled a slum. Traditionally, it has been the first residential area for immigrants to this country. At present, about half of the 100,000 residents of the community were born outside of the United States. Ethnic groups in the area include Italians, Jews, Negroes, East Europeans, Chinese, and a large segment of Puerto Ricans. The last represent the most recent wave of immigrants to the city. Except for those residing in a smattering of middle income cooperatives, about half of the population lives in tenements, and the other half in low income public housing.

Survey Sample

A sample of residents was drawn by listing every known dwelling unit in the area, stratifying this list into 250 equal intervals of 133 housing units, and randomly selecting five households within each interval. Since the listing of households corresponded to the geographical arrangement of housing units, the sample is a proportionate random sample, geographically stratified.[7] One thousand two hundred and fifty households were selected in this way. Within each of these households, an effort was made to interview one person, 20 years or older. The person to be interviewed was also randomly selected.

Interviews were actually conducted with 988 of the 1,250 potential respondents, for a completion rate of 79 percent. About half of the persons with whom interviews were not conducted refused to be interviewed. Preliminary probes of the data, and comparisons with census materials indicate that the obtained 988 interviews can be taken as reasonably representative of the community under study. Interview losses were greatest among the older residents of the community, and in households with no adolescent members. Completion rates were quite high among Puerto Ricans and residents of low income public housing. Interviews were conducted entirely or partly in 13 languages,[8] thus reducing any bias in the sample toward those residents who were more culturally assimilated.

Measure of Social Class

Since this paper deals with the impact of involvement in educational matters upon attitudes toward education by social class, we turn now to a

[7] That is, a stratified random sample in which the sampling proportion is the same within all strata. William G. Cochran, *Sampling Techniques*. New York: John Wiley and Sons, Inc., 1953, p. 67.

[8] The languages were: English, Spanish, Yiddish, German, Polish, Italian, Russian, Ukranian, French, Hungarian, Japanese, Chinese, and Greek.

discussion of the indices of social class and of involvement in education which will be used.

The notion of social class usually refers to an individual's general standing in a hierarchy of positions. Since we can always locate some individuals whose general standing in the society is higher or lower than others, every society is stratified into social classes. Social class seems to have two dimensions: a productive dimension and a consumptive dimension. The former involves the degree to which an individual possesses wealth, knowledge and power. It is most commonly represented by an individual's income, education and occupation. The consumptive dimension of social class involves expressions of a particular style of life, and is measured by how a person spends his money, where his children are educated, and what values he espouses.[9] The index of social class which is employed in this study is a measure of a person's general position with respect to the *productive* aspects of class. It is, therefore, a measure of a person's general educational, occupational and economic position.

In the course of the survey interview, the respondent was asked his occupation, how many years of school he had completed, and the total family income. Information about the education and occupation of the respondent's spouse, if any, was also obtained. The measure of social class is based upon the education and occupation of the head of the household, and the total family income, adjusted for the number of persons living on that income.

The head of the household was classified into one of four occupational groupings: (a) professionals, semiprofessionals, managers, and officials; (b) clerks and salesmen; (c) craftsmen, foremen, and self-employed white and blue collar workers; and (d) operatives, service workers, laborers, and permanently unemployed persons. The head of the household was also classified into one of four educational groups: (a) completed some college or more; (b) finished high school; (c) completed some high school; and (d) finished grade school or less.

Finally, the adjusted family income was classified into one of four categories: (a) less than the minimum wage of $1.25 per hour; (b) more than the minimum wage, but less than the Lower East Side median income; (c) more than the Lower East Side median income, but less than the national median income; and (d) more than the national median income. These classifications were then combined into three groups which roughly correspond to the Lower Class, the Working Class, and the Lower Middle Class and above.

[9] See among others: Joseph A. Kahl, *The American Class Structure*, New York: Holt, Rinehart & Winston, Inc., 1957; and Harold W. Pfautz, "The Current Literature on Social Stratification," *The American Journal of Sociology* 58: 391-418; January 1953.

On the basis of this index of social class, 44 percent of the residents were classified as Lower Class, 36 percent as Working Class, and the remainder, 20 percent, as Lower Middle Class or above. The typical lower class person in our index has had less than an eighth grade education, is employed as an unskilled or service worker, and lives in a family whose income per person is less than the minimum wage. The typical lower middle class person, on the other hand, is a professional or semi-professional, has had some college education, and lives in a family whose income per person is above the national median. The working class member falls between these two extremes. He is usually a skilled worker, clerk or salesman with at least some high school education, and lives in a family whose income per person is about average for residents of the Lower East Side.

Measuring Involvement in Educational Activities

One of the most striking things about our educational system is that there are virtually no formal channels through which persons without children in the public schools can make known their feelings about educational matters. Those without children in school are restricted to participation in the educational system through budget hearings or ad hoc "citizens for better schools" committees. Thus, involvement in educational matters is virtually restricted to persons with children in the public schools.

For persons with children in school there are two ways to become involved in education. The first, and the most preferred way, is through active participation in the local Parent-Teacher Association. The second is through informal visits to the school and discussions with educational personnel.

P rsons who are involved in the first way are likely to focus upon problems of the educational system, such as obtaining funds to conduct special programs, motivating more participation by parents, and attempting to grasp the reasons for certain school procedures and problems. Parents who confine their participation to visiting the school are much more likely to focus upon the educational problems or success of their particular children. Many persons believe that involvement in education through the Parent-Teacher Association is preferable to involvement through visiting the schools. By participating in the meetings and activities of the organization, they believe that the parent gains a better perspective of the problems of the school, and that he finds himself in a better position to make his desires known and to get them acted upon.

Our measure of involvement attempts to take these matters into account by: (a) being restricted to persons with children in the public schools; and (b) by weighting more heavily active participation in the Parent-Teacher Association. Persons who are past or present officers of the PTA, therefore, are considered most involved in educational matters. Slightly less involved are those who, although not officers of the Association, attend most of its meetings. Persons who are nominal members of the PTA are considered more involved than those who just visit the schools, while parents who do not even visit the schools are deemed to be least involved. Excluded from the index are respondents in households where no one is attending school (61 percent of the sample), and respondents in households where all of the children attend private or parochial schools (2 percent of the sample). The distribution of respondents according to the five categories of the involvement index is as follows:

	Percent
Past or present officers of the PTA	4
Attends most or all of the meetings of the PTA	7
Belongs to PTA, but attends few meetings	15
Does not belong to PTA, but visits the school	45
No contact with the schools	29
Number of cases (with children in public schools)	(360)

As shown by the preceding figures, nearly half of the residents of the community who become involved in educational matters do so at the lowest level—visiting the schools, presumably to discuss their own children's educational progress. Over one-fourth of the persons in the community to whom avenues of participation in educational matters are open fail to avail themselves of these opportunities.

Because of the small number of persons who are highly involved in education, only three divisions of the index will be used. We shall distinguish between those who have no contact with the schools, those who visit the school but do not belong to the Parent-Teacher Association, and those who are members of the PTA.

Attitudes Toward Education and Schools

In this section we will attempt to show whether there are significant differences by social class in attitudes toward education and toward schools as institutions. Although our findings generally confirm the results of earlier studies, they also show that the relationship between social class and attitudes toward education is more complicated than previously was assumed.

There is much evidence which suggests that although education is widely valued in our society, it is not equally valued among the several social classes which make up the society. For example, Hyman summarized a national survey in which a sample of youths was asked: "About how much schooling do you think most young men need these days to get along well in the world?" The results are shown in Table 1.

Table 1. Class differentials in emphasis on the need for college education (201 males aged 14 to 20)*

Socioeconomic position of family	Percent recommending a college education	Number of respondents
Wealthy and prosperous	74	39
Middle class	63	100
Lower class	42	62

* H. Hyman, "The Value Systems of Different Classes: A Social-Psychological Contribution to the Analysis of Stratification." Reinhard Bendix and S. M. Lipset, editors, *Class, Status and Power*. Glencoe, Illinois: Free Press, 1953. p. 432.

These data, like others that Hyman presents, show that a sizeable proportion of persons at each point in the social structure consider a college education desirable. Even in the lowest level of society, the proportion who emphasize the need for education is not small. But it is also true that there are strong differences from one stratum to another. In general, the proportion recommending higher education increases with each upward step in the socioeconomic hierarchy.[10]

When, in our community survey, we asked the same question reported by Hyman, the results obtained showed the same general relationship between social class and attitudes toward education. The top half of Table 2 shows the results for all respondents in each class grouping, while the bottom half shows the results for respondents in households where children are attending school. In both instances the proportion of respondents saying that a young man needs more than a high school education (i.e., at least some college, or high school graduation plus technical training) increases as position in the class hierarchy increases. Thus, although three-fourths of the middle class respondents stated that it was desirable for a young man to have more than a high school education, only 59 percent of the working class respondents, and 41 percent of the lower class respondents stated that a young man needs this much

[10] At least one study in a foreign country (Sweden) indicates that this differential evaluation of education is not restricted to the American class structure. See: Hadley Cantril, *Public Opinion*, 1935-1946. Princeton, New Jersey: Princeton University Press, 1951. p. 180-81.

education. If just those respondents from households where children are attending school are compared (bottom half of the table), the same relationship is observed, except that the proportion of respondents saying that more than a high school education is needed is larger for each class grouping. That is, those respondents with children in the household attending school place a higher valuation on education than those in households with no children.

Table 2. Percent of respondents in each class who think that a young man needs more than a high school education in order "to get along well in the world." *

	All respondents		
	Lower	Working	Middle
Percent saying more than high school education	41	59	76
Number of cases	(434)	(354)	(200)
	Respondents with children in school only		
	Lower	Working	Middle
Percent saying more than high school	43	68	81
Number of cases	(187)	(142)	(55)

* The specific question asked was, "About how much schooling do you think most young men need these days to get along well in the world?"

Table 3 shows the proportion of respondents in each class grouping who mentioned education when asked what "getting ahead" means to them. Again there is a direct relationship between position in the class hierarchy and the importance placed on education. The relationship, however, is not especially strong. For all respondents, about one-fourth of the middle class and less than one-fifth of the lower and working class respondents said that obtaining or providing a good education came to mind when talking about getting ahead. If the top and bottom parts of Table 3 are compared, the same relationship holds, except that working class respondents are much more like middle class respondents than lower class respondents.

Results such as these have often been taken to mean that low income people fail to understand the basic relationship between educational achievement and occupational mobility. While this may in part be true, such an interpretation may also be oversimplified. In this connection, we asked people whether or not they thought that "a good education is essential to getting ahead." At least 95 percent of all respondents in *all* social classes replied in the affirmative. It is true, of course, that

questions of such a general and abstract order often elicit rather stereotyped responses, and this may account for the uniformity of responses to this question by social class. On the other hand, there is also the possibility that other forces operate to produce class differences in the importance of education.

One possibility, of course, is that educational attitudes are influenced by the occupational levels which people define as meeting the criterion of "getting ahead." The answer to the question of how much education a person needs to get ahead in the world may be influenced considerably by the respondent's definition of an appropriate occupational level. Thus low income people may perceive the relationship between education and mobility, but nevertheless give lower estimates of the amount of education required to get ahead simply because they are oriented toward correspondingly lower positions in the social structure than their middle and upper income counterparts.

A partial test of this possibility is available with data from the survey. Residents of the Lower East Side were asked: "Suppose some outstanding young man asked your advice on what would be one of the best occupations to aim toward. What *one* occupation do you think you would advise him toward?" Most of the respondents said that they would advise him to take up one of the professions or semiprofessions. Many of the respondents, however, did not indicate this opinion. They either said that they could not advise the young man, or would advise him toward a nonprofessional career. If differences in the occupational level toward which persons are oriented account for class differences in the amount of education deemed necessary, then there will be no differences between the classes when occupational level is controlled. The data are presented in Tables 4 and 5.

Table 3. Percent of respondents in each class who say that "getting ahead" means obtaining or providing a good education.*

	Total number of respondents		
	Lower	Working	Middle
Percent saying good education	17	19	24
Number of cases	(434)	(354)	(200)
	Respondents with children in school only		
	Lower	Working	Middle
Percent saying good education	19	26	25
Number of cases	(187)	(142)	(55)

* The specific question asked was: "When we talk about getting ahead, or rising in the world, what sorts of things come to mind? (What does getting ahead mean to you?) Anything else?"

Table 4. Percent of respondents in each class who think that a young man needs more than a high school education in order "to get along well in the world" by level of occupational aspiration.*

	Lower		Working		Middle	
	Prof. and semiprof.	Other	Prof. and semiprof.	Other	Prof. and semiprof.	Other
Percent more than a high school education	50	29	62	54	75	77
Number of cases	(248)	(186)	(243)	(111)	(131)	(69)

* The specific question asked to determine level of occupational aspiration was, "Suppose some outstanding young man asked your advice on what would be one of the best occupations to aim toward. What *one* occupation do you think you would advise him toward?"

Table 5. Percent of respondents in each class who say that "getting ahead" means obtaining or providing a good education by level of occupational aspiration.

	Lower		Working		Middle	
	Prof. and semiprof.	Other	Prof. and semiprof.	Other	Prof. and semiprof.	Other
Percent saying good education	22	11	24	9	25	22
Number of cases	(248)	(186)	(243)	(111)	(131)	(69)

Members of the three classes are then subdivided into those who would and those who would not advise the young man to take up a professional or semiprofessional career. When the responses about how much education a young man should have are then examined (Table 4), the differences between the classes observed previously still remain. It can be seen, however, that respondents' definitions of an appropriate career for a talented young man have a much greater impact among lower class persons than among working or middle class persons. Among lower class respondents who would advise a young man to take up a professional or semiprofessional career, half state that a young man needs more than a high school education to get along well in the world, whereas among those who would not advise a young man toward such a career, only about 30 percent feel that more than a high school education is needed. As we move up the class ladder, this difference gradually decreases, and, in fact, among middle class respondents, the definition of an appropriate career for a young man makes no difference at all. It would seem, therefore, that lower class persons place less emphasis upon education for education's sake, since their estimates as to the amount of education a young man needs are most affected by the level of occupational aspiration.

When occupational aspiration is controlled and the responses of the several social classes to questions regarding the meaning of "getting ahead" are compared, the results, as shown in Table 5, are generally similar. The impact of the definition of an appropriate career for a talented young man is greater in the lower and working classes than in the middle class. Members of the middle class who do not feel that the professions or semiprofessions are an appropriate career for a talented young man are just as likely to mention education as a means of getting ahead as are those who do feel this way. One may conclude from this that middle class persons are more likely than lower or working class persons to think of education as good in and of itself, regardless of the occupation they have in mind when advising a young person about careers.

Yet, the matter is not this simple, for adding to the complications of the picture of the relationship between class attitudes towards education are perceptions of the place of education in a person's conception of "the good life." One question we asked was, "What kinds of things come to mind when you think of a good life for (the children in this household)?" The results are shown in Tables 6 and 7. Both of these tables—the first for boys and the second for girls—show the percentage of respondents in each class grouping who mentioned education as an aspect of a "good life" for the children in the household. Both tables *fail* to show that the importance placed on education increases as position in the class hierarchy increases. If anything, each shows that the working class respondents are slightly more likely to mention education than are their middle or lower class counterparts. This is especially true for respondents in households where children are attending school.

The results of Tables 6 and 7, which indicate that education is slightly more salient for working class parents, are difficult to interpret. One

Table 6. Percentage of respondents in each class who say that education comes to mind when they think of a good life for the boys in the household.*

	All respondents		
	Lower	Working	Middle
Percent mentioning education	56	62	57
Number of cases	(208)	(155)	(60)
	Respondents with children in school only		
	Lower	Working	Middle
Percent mentioning education	59	67	59
Number of cases	(157)	(123)	(41)

* The specific question asked was, "Most people would like to see children have a good life. Could you tell me what comes to mind when you think of a good life for (name *boys* in house), Anything else?"

Table 7. Percent of respondents in each class who say that education comes to mind when they think of a good life for the girls in the household.*

	All respondents		
	Lower	Working	Middle
Percent mentioning education	56	61	62
Number of cases	(196)	(134)	(53)

	Respondents with children in school only		
	Lower	Working	Middle
Percent mentioning education	56	65	59
Number of cases	(148)	(105)	(37)

* The specific question asked was, "(Most people would like to see children have a good life.) Could you tell me what comes to mind when you think of a good life for (name *girls* in house)? Anything else?"

possibility is that education is more problematic for working class parents than for either lower or middle class parents. It has already been shown that members of all classes perceive the connection between education and social mobility. Tables 6 and 7 may reflect reality considerations. Middle class parents with a more secure economic position probably are less concerned about providing adequate education for their children, take such education for granted, and hence are less likely to report this as a factor when thinking of a good life for their children. Lower class parents, on the other hand, probably perceive education as a bit beyond their financial capacity, and react by deemphasizing education when thinking of a good life for their children. For working class parents, however, an adequate education is neither assured nor beyond the realm of possibility. This would make education more problematic for working class parents, and would heighten its saliency. Bolstering this would be the tendency of middle class parents to perceive education as an end in and of itself, and the tendency of lower class persons to perceive education as a means toward an end. Both may operate to reduce the saliency of education as an element of parents' conception of a good life for their children. In comparisons of class conceptions of a good life for children, therefore, education would be more salient for working class parents.

The School as an Institution

Residents' evaluations of the local public schools undoubtedly have a profound effect on the ability of the school to mobilize public support for its programs. School authorities often complain of public apathy toward school problems and of the difficulty of generating support for new ventures in education. At the same time, some persons have charged that

the schools are in, but not of the community—that, especially in low income areas—school authorities are uninterested in, if not antagonistic toward, the local residents and their offspring. The school, some have said, fails to adapt its educational techniques and routines to the values and learning habits of the population it serves. This, in turn, apparently creates a barrier between the school and its community, resulting in mutual misunderstanding and hostility. For these reasons, and because the school is deemed a middle class institution,[11] our expectation was that lower class residents would evaluate the schools more negatively than middle class residents. Yet, as Tables 8 to 12 show, the reverse turned out to be true in the community which we studied.

The data presented in Table 8 were constructed from respondents' selections of community problems from a list of five.[12] In general, schools were not considered much of a problem, ranking fourth in the list of five. It can be seen from Table 8 that designation of the public schools as the first or second biggest problem in the area increases with position in the class hierarchy. Although about one-fourth of the middle class respondents selected this as the number one or number two problem of the community, only about one-half that proportion of the working and lower class respondents did so. The same relationship exists when only

Table 8. Percent of respondents in each class who consider the public schools to be the first or second biggest problem in the community.*

	All respondents		
	Lower	Working	Middle
Percent mentioning school first or second	13	15	25
Number of cases	(434)	(354)	(200)
	Respondents with children in school only		
	Lower	Working	Middle
Percent mentioning school first or second	19	22	31
Number of cases	(187)	(142)	(55)

* The specific question asked was: "Here is a list of problems that some communities have. What in your opinion is the *biggest* problem around here? What is the *next biggest* problem around here?"

[11] Albert K. Cohen. "School and Settlement House." In: Herman D. Stein and Richard A. Cloward. *Social Perspectives on Behavior.* Glencoe, Illinois: The Free Press, 1958. p. 341-44. Also: Martin Mayer. *The Schools.* New York: Harper & Row, Publishers, Inc., 1961. p. 114-35.

[12] The five problems were: the transportation the public schools, the city police protection, the way teenagers behave and the way certain racial groups behave.

respondents in households with school children are compared. It should be noted, however, that the proportion of such residents in each social class designating the schools as one of the major problems of the community is higher than for residents without children in the public schools.

Table 9 presents data on residents' evaluation of the job being done by the public schools. As in the previous table, middle class residents are more negative. For all respondents, about one-fifth of the middle class respondents, compared to nearly two-fifths of the lower and working class

Table 9. Percent of respondents in each class who think that the public schools are doing an "excellent" or a "good" job.*

	All respondents		
	Lower	Working	Middle
Percent saying "excellent" or "good"	37	37	21
Number of cases	(434)	(354)	(200)
	Respondents with children in school only		
	Lower	Working	Middle
Percent saying "excellent" or "good"	50	45	31
Number of cases	(187)	(142)	(55)

* The specific question asked was, "In general, do you feel the public schools around here are doing an excellent, good, fair, poor, or very poor job?"

Table 10. Criteria for the evaluation of the public schools by class.*

	All respondents		
	Lower	Working	Middle
Percent stressing:			
Conditions	27	32	40
Teachers	27	21	19
Discipline	16	23	20
Learning	21	19	16
Other	9	5	5
Number of responses	(409)	(354)	(197)
	Respondents with children in school only		
	Lower	Working	Middle
Percent stressing:			
Conditions	26	32	41
Teachers	28	23	13
Discipline	14	20	23
Learning	22	21	17
Other	10	4	6
Number of responses	(256)	(183)	(64)

* The specific question asked following the respondent's rating of the job being done by the public schools was, "Why do you say that?"

respondents, feel that the schools are doing an "excellen" or a "good" job. When respondents in households with children actually in school are compare!, the negative relationship between class position and positive evaluation of the schools increases. About half of the lower and working class respondents give a positive evaluation, while only three out of every ten middle class respondents do so.

In Table 10 we may discern a possible reason for class differences in evaluation of the schools. When evaluating the schools, middle class respondents are more likely to think of conditions in the schools, such as overcrowding and rundown buildings. Lower class residents, on the other hand, are more likely to think of the teachers when evaluating the public schools. Members of the working class stand between these two groups, stressing conditions in the school more than they do the teachers, but not to the same degree as do members of the middle class. These general tendencies also exist when comparisons are made just for respondents in households with children in school.

Tables 11 and 12 are drawn from a battery of agree-disagree items. The results of Table 11 conform to those of previous tables. Middle class respondents evaluate teachers more negatively than do lower and working class respondents. Whereas almost three out of ten middle class respondents disagree that teachers are really interested in their pupils, less than two out of ten lower class respondents feel this way. When respondents from households with children actually in school are compared, this relationship becomes even stronger. In addition, it should be noted that negative appraisal of teachers' interest is slightly higher for all class groups.

Table 12 is the only table that fails to conform to the general pattern. The item involved in this table is also the only one which contains an explicit reference to economic position. Lower class respondents are more likely than those from the middle class or the working class to

Table 11. Percent of respondents in each class disagreeing that "The teachers here are really interested in the kids."

	All respondents		
	Lower	Working	Middle
Percent disagreeing	19	25	28
Number of cases	(434)	(354)	(200)
	Respondents with children in school only		
	Lower	Working	Middle
Percent disagreeing	22	27	37
Number of cases	(187)	(142)	(55)

feel that the schools do not pay enough attention to children from poor families. Nearly one out of every three lower class respondents gives this response, compared to less than one in five of the middle and lower class respondents. The relationship holds when respondents in households with children in school are examined separately. Thus, when the school's attitude toward pupils from the lowest economic stratum is explicitly asked about, respondents in that class are more negative than those in the economic classes above them.

Table 12. Percent of respondents in each class agreeing that "the schools don't pay much attention to kids who come from poor families."

	All respondents		
	Lower	Working	Middle
Percent agreeing	31	19	18
Number of cases	(434)	(354)	(200)
	Respondents with children in school only		
	Lower	Working	Middle
Percent agreeing	34	16	18
Number of cases	(187)	(142)	(55)

In general, then, middle class respondents have the more negative opinion of the public schools. They are more likely to consider the public schools as one of the major problems of the community, are less likely to feel that the schools are doing a good job, and are more likely to disagree with the assertion that the teachers are really interested in their students. Only when the reaction of the schools toward pupils from the lowest economic stratum is mentioned do middle class respondents exhibit a less negative attitude than do persons at the bottom of the class ladder.[13]

It is not yet clear what these findings mean. Several interpretations are possible. It may be that lower class respondents faced with the certainty of sending their children to public school, develop a more positive attitude toward the schools as a means of feeling better about what has to be done. Middle class persons, with the alternative of sending their children to private schools, can afford to be more negative about the state of the schools. A second interpretation is that the middle class person imagines the school unable to cope with a discipline problem presented by lower class pupils and concludes that public education cannot be very good. Finally, it is possible that members of the middle class

[13] It is worthwhile pointing out that a negative attitude toward the schools is not automatically a cause for despair. It is not at all uncommon for positive consequences to flow from negative attitudes. It seems certain, in fact, that if improvements in school plant and curricula are to be effected, there must be discontent and negativism to provide the motivation for such change.

have higher expectations of what the schools are supposed to accomplish, thus making their evaluation of the performance of the schools more negative than that of members of the working and lower classes.

Spurious Relationships

The persons who occupy the various strata of the class hierarchy differ in many ways other than those used to define class position. Puerto Ricans, Negroes, the foreign-born, and short-term residents in the community are more likely to be in the lowest stratum. Correlatively, Jews and other whites, those who were born in the United States, and long-term residents of the community are more likely to be in the upper strata. It may be that *these* characteristics, rather than class position, produced the results just presented. In addition, the results may be solely a product of the amount of schooling a respondent has had, rather than his general class standing. The findings relating to class reported here were, therefore, examined for various racial, religious, and immigrant groupings. The findings were also examined for persons with varying amounts of education, and years of residence in the community.

Although the class trends were more pronounced in some groups than in others, the findings, with one exception, appear to be a consequence of class position. The single exception is the relationship between class position and appraisal of teachers' interest in their pupils (Table 11). This was found to be a consequence of amount of education alone. The more years of school a respondent had completed, the more likely he was to disagree with the assertion that teachers were really interested in their pupils. Thus, in the exploration of the impact of involvement in educational matters upon class attitudes toward education, which follows, this item will not be examined.

Impact of Educational Involvement

We consider now the question of whether involvement in educational activities influences attitudes toward education generally and toward the school particularly. As noted earlier, our measure of involvement yields three general categories of people, those with children in the school who: (a) have no other contact with the school, or (b) visit the school, or (c) participate in local Parent-Teacher Association activities.

In the following pages, we will discuss the changes in attitudes toward education and evaluation of the public schools which are brought about as a result of participation in PTA activities or of contact with school personnel. Rather than attitude changes being the result of par-

ticipation, it is quite possible that attitudes determine participation. What is even more probable is that attitudes and participation are mutually intertwined, that each is both a cause and effect of the other. We have chosen, for the present, to ignore the possibility of mutual effects, and the possibility that the relationships run directly opposite to the way we will discuss them. Actually our preliminary examination of the data indicates that attitudes toward education and the schools are greatly affected by the presence of children in the household, and whether or not those children are in school. A comparison of the top and bottom halves of Tables 2, 3, and 6 to 12 indicates that the attitudes of respondents with children in school are quite different from those without children in school. As will be shown subsequently, the direction of these differences is the same as the direction of differences between respondents who participate in the educational system and those who do not. This, however, is minimal evidence for taking the position that we have taken. It is expected that subsequent analyses of our data will permit a precise detailing of cause and effect relationships, thus highlighting the mutual effects, if any, between attitudes toward education and participation in educational matters.

Importance of Education

Generally speaking, our data show that the value of education is heightened for parents who visit the school or who participate in Parent-Teacher Associations. Furthermore, the impact of involvement in the school upon definitions of the importance of education tends to be greater in the lower and working classes than in the middle class. These findings may be demonstrated by examining Tables 8 to 18.

One question we asked was, "How much education do you think that a young man needs to get along well in the world?" As we noted earlier, the responses to this question show a direct relationship to class; the higher the social class, the more likely that the respondent would indicate that more than a high school education was necessary.

The critical point to be made about Table 13, however, is that participation in educational activities through visits or membership in the Parent-Teacher Association affects estimates of the importance of education in the various social classes differently. The greatest impact seems to be upon the working class group: 63 percent of working class people who have no contact with the school feel that more than a high school education is essential; 69 percent of those who report having visited the school in the past year give this response; and 78 percent who report participating in parent associations are so minded. With respect to this

one measure, however, the lower class shows the least change in definitions of the importance of education as a result of participation. Yet, as we will see, on all other measures of the importance of education which we used, the impact of education turns out to be greatest for the lower class.

Table 13. Percent of respondents in each class who think that a young man needs more than a high school education in order "to get along well in the world" by extent of involvement in education.

	Lower class			Working class			Middle class		
	NC*	VO	FP	NC	VO	FP	NC	VO	FP
Percent saying more than high school	43	43	46	63	69	78	76	78	87
Number of cases	(63)	(86)	(28)	(33)	(53)	(45)	(8)	(22)	(22)

* These abbreviations stand for "No contact," "Visits only" and "Formal participation." They are used throughout the remaining tables.

Elsewhere in our interview we asked respondents to define what "getting ahead" means to them. Although persons in the lower class were least likely to mention getting an education (Table 14), they were the most likely to be influenced in this respect by participation: 16 percent of lower class persons who had no contact with the school mentioned getting an education, but 25 percent of those connected with PTAs gave this answer. The impact of participation upon working class persons is almost as great as it is in the lower class. In the middle class, however, participation appears to have no appreciable influence.

Table 14. Percent of respondents in each class who say that "getting ahead" means obtaining or providing a good education by extent of involvement in education.

	Lower class			Working class			Middle class		
	NC	VO	FP	NC	VO	FP	NC	VO	FP
Percent saying education	16	22	25	21	26	29	25	27	23
Number of cases	(63)	(86)	(28)	(33)	(53)	(45)	(8)	(22)	(22)

The extent to which people name education as an element in "what comes to mind when you think of a good life for your children?" also provides us with a way of measuring the impact of educational involvement upon attitudes toward education (Table 15). The attitudes of people in the lower class are especially influenced by educational participation: among those who are involved in formal educational activities, three out of four suggest that the good life for both boys and girls is equated with getting an education; however, only half of those who have no contact with the school give this response. The middle class also shows an increasing tendency to equate education with the good life as the degree

of participation increases (although there is an exception in one cell, it should be noted that the number of cases is very small). In the working class group, however, there is a slight and inexplicable tendency for participation to lessen the emphasis on education.

Table 15. Percent of respondents in each class who say that education comes to mind when they think of a good life for boys and for girls in the household by extent of involvement in education.

	Lower class			Working class			Middle class		
	NC	VO	FP	NC	VO	FP	NC	VO	FP
Boys									
Percent education	54	61	76	69	64	65	50	53	65
Number of cases	(54)	(74)	(21)	(29)	(47)	(37)	(4)	(17)	(17)
Girls									
Percent education	47	56	78	70	64	61	83	40	71
Number of cases	(47)	(70)	(23)	(23)	(39)	(36)	(6)	(15)	(14)

Appraisals of the School

Evaluations and appraisals of the school as an institution were also influenced by involvement in school activities. Generally, the greater the exposure to the school and its personnel, the less favorable the views tended to become.

Table 16 shows, for example, that with greater exposure to the school there is a definite tendency for more respondents to define the public schools as the first or second biggest problem in the community. It should also be noted that the influence of exposure upon appraisals is greatest in the middle class, where the percentage of difference between low and high participators is 28 percent; the difference in the working class is 12 percent, and in the lower class only 10 percent. At the same moment, however, the proportion of people who appraise the school as a major problem in the community never exceeds 41 percent (middle class high participators). Even with greater exposure to the schools, most peo-

Table 16. Percent of respondents in each class who consider the public schools to be the first or second biggest problem in the community by extent of involvement in education.

	Lower class			Working class			Middle class		
	NC	VO	FP	NC	VO	FP	NC	VO	FP
Percent saying schools	19	18	29	15	23	27	13	32	41
Number of cases	(63)	(86)	(28)	(53)	(53)	(45)	(8)	(22)	(22)

ple continue to feel that other problems in the community are of greater importance.

With respect to whether people think that the schools are doing a good or poor job, exposure has little impact or negative impact (Table 17). In the working class there is a tendency for more negative appraisals to result from exposure; in the lower and middle classes, appraisals remain relatively constant whatever the degree of participation.

Table 17. Percent of respondents in each class who think that the public schools are doing an "excellent" or "good" job by extent of involvement in education.

	Lower class			Working class			Middle class		
	NC	VO	FP	NC	VO	FP	NC	VO	FP
Percent saying "excellent" or "good"	54	48	54	57	41	42	38	23	41
Number of cases	(63)	(86)	(28)	(33)	(53)	(45)	(8)	(22)	(22)

These results would tend to suggest that school administrators must be prepared to deal with more negative attitudes toward the school if greater efforts are made to involve people in school activities. Such involvement, as we noted earlier, is functional for attitudes toward the importance of education generally; but as attitudes toward education improve, the school as an institution is more likely to come under attack. Skillfully managed, however, these negative attitudes can become a source of pressure for better educational facilities and programs.

In Table 18, we find some reason to qualify our earlier remarks about the positive impact of participation in educational activities toward the school. If we look at changes in the aspects of the school as an institution to which people refer when making appraisals, it turns out that the lower and working classes shift in the direction of exhibiting greater concern about facilities. The tendency to evaluate the school from the standpoint of the adequacy of its facilities—as distinct from such other characteristics

Table 18. Criteria for evaluation of public schools by class and extent of involvement in education.

	Lower class			Working class			Middle class		
	NC	VO	FP	NC	VO	FP	NC	VO	FP
Percent stressing									
Conditions	18	31	27	19	32	42	42	44	40
Teachers	25	31	24	22	19	27	8	19	10
Discipline	14	12	16	27	22	13	25	22	20
Learning	24	22	24	27	26	12	17	11	15
Other	19	4	8	5	1	7	8	4	5
Number of responses	(93)	(117)	(37)	(37)	(74)	(60)	(12)	(27)	(20)

as the quality of its teachers—is, we noted earlier, more typical of middle class people than of those in either the lower or working classes. Participation in educational activities, however, appears to produce significant changes.

As a result of formal participation, the working class respondent refers to conditions as much as does his middle class counterpart, while the lower class participant shows a smaller but nevertheless dramatic shift in the same direction. This change could be produced by a number of factors. Sheer exposure to schools through visits and the like may make the respondent more aware than previously of the state of school facilities. Another possibility is that Parent-Teacher Associations sometimes may be strongly interested in the physical plant because their leaders are middle class persons who express this concern more than do others in the class structure. Through association with middle class PTA members, the lower and working class person may thus be made more aware of the physical plant, and may identify with middle class definitions of it.

This particular effect of participation would not otherwise cause concern except that in the working class this effect is accompanied by a sharp decline in emphasis upon matters such as discipline and learning. The effect, in short, may be one of heightening concern about education in the sense of focusing attention upon physical plant at the expense of interest in matters of program and curriculum. In the lower and working classes, this result would not appear to be a desirable consequence, which suggests that the content of educational involvement is as important as the fact of involvement itself."

[11] It will be recalled that in Table 12, lower class people were most likely to feel that the schools "do not pay much attention to kids from poor families. The impact that involvement in education has upon this attitude is difficult to interpret. It is clear from the following table that involvement in education tends to produce a more negative attitude among middle class persons, a less negative one among lower class persons, and apparently has no impact among working class persons. As yet, we do not know what to make of this result. A tentative interpretation is that middle and lower class persons are tending toward a more realistic assessment. Upon becoming involved, middle class persons discover that the children of poorer families are not as well treated as had been initially supposed, while lower class persons who become involved discover that children of poorer families are treated better than had been supposed. Essentially, however, the results of this table remain puzzling to us, and call for further analysis.

Percent of respondents in each class agreeing that "the schools don't pay much attention to kids who come from poor families" by extent of involvement in education

	Lower class			Working class			Middle class		
	NC	VO	FP	NC	VO	FP	NC	VO	FP
Percent agreeing	41	31	32	18	13	18	..	14	27
Number of cases	(63)	(86)	(28)	(33)	(53)	(45)	(8)	(22)	(22)

In conclusion, two general, though tentative, findings emerge from this research. The first is that evaluations of the importance of education in the lower and working classes appear to be influenced by occupational aspirations. The point is not, as has been so often suggested, that low income people fail to perceive the importance of education as a channel of mobility, but rather that their level of occupational aspiration influences their evaluations of education much more than is characteristic of the middle class person. From a programmatic standpoint, this suggests that public information programs designed to acquaint low income people with the rapid changes taking place in our occupational structure, especially the restricted number of unskilled and semiskilled positions, may have the effect of heightening occupational aspirations and thus the importance of education.

Second, our data suggest that participation in educational activities does influence evaluations of the importance of education, and attitudes toward the school as an institution. The tendency of participation to heighten the emphasis on education is especially pronounced in the lower class. This suggests that efforts to involve lower class people in educational matters are quite likely to be rewarded by increased interest in the academic achievement of their children. Participation also tends to result in more critical attitudes toward the school as an institution. These generally more negative attitudes, we noted, can be employed by school administrators as a basis for bringing about needed improvements in school facilities and programs.

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